Calhoun
Institutional Archive of the Naval Postgraduate School

Calhoun: The NPS Institutional Archive

DSpace Repository

Theses and Dissertations | 1. Thesis and Dissertation Collection, all items

1996-03

Case study analysis of air power development as a test of external democratic behavior.

MacDonald, Robert J.; Moyano, Maria Jose

Monterey, California. Naval Postgraduate School

http://hdl.handle.net/10945/8054

Downloaded from NPS Archive: Calhoun

http://www.nps.edu/library

Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA

THESIS

CASE STUDY ANALYSIS OF AIR POWER DEVELOPMENT AS A TEST OF EXTERNAL DEMOCRATIC STATE BEHAVIOR

by

Robert J. MacDonald

March 1996

Thesis Advisor: Maria Moyano

Thesis
M183272

Approved for public release; distribution is unlimited.

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE March 1996	3. REPORT TYPE AND DATES COVERED Master's Thesis

4. TITLE AND SUBTITLE Case Study Analysis of Air Power Development as a Test of External Democratic State Behavior. (UNCLASSIFIED)	5. FUNDING NUMBERS
6. AUTHOR(S) Robert J. MacDonald	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey CA 93943-5000	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.	12b. DISTRIBUTION CODE

13. ABSTRACT *(maximum 200 words)*

The United States National Security Strategy is based on two essential propositions: that peaceful international relations can be established through the global spread of democracy and economic capitalism. This thesis challenges the premise of democratic peace through a case study analysis of French, British, and United States' air power development in the 1920s and 1930s. The most powerful argument supporting this theorem is that a democracy's culture, perceptions, and practices inculcate internal nonviolent conflict resolution which are, in turn, practiced in their external relations with other states. If this were true, a democracy's international interaction will reflect these influences in their military, economic, and political exchanges. Focusing on the military aspect of international relations supporting national security, this thesis evaluates if democracies historically tended toward more humanitarian approaches. Did the development and application of democratic state air power doctrine support the notion that democracies tend to be peaceful international actors? At stake is the direction of United States' national security policy and whether it will be based on an idealistic view of international interaction--the "prism of peace"; or whether it should continue to be founded with a realist's eye toward interstate relative power considerations.

14. SUBJECT TERMS Perpetual Peace-Democratic Peace Theory-National Security Strategy-Military Strategy-Military Doctrine-Air Power Theory-Air Power Doctrine-Strategic Bombing-Humanitarian-Democracy-Democratic States	15. NUMBER OF PAGES 262
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18 298-102

Approved for public release; distribution is unlimited.

CASE STUDY ANALYSIS OF AIR POWER DEVELOPMENT AS A TEST OF EXTERNAL DEMOCRATIC BEHAVIOR

Robert J. MacDonald
Major, United States Air Force
B.S., United States Air Force Academy, 1983
M.S., Embry Riddle Aeronautical University, 1994

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

from the

NAVAL POSTGRADUATE SCHOOL
March 1996

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

ABSTRACT

The United States National Security Strategy is based on two essential propositions: that peaceful international relations can be established through the global spread of democracy and economic capitalism. This thesis challenges the premise of democratic peace through a case study analysis of French, British, and United States' air power development in the 1920s and 1930s. The most powerful argument supporting this theorem is that a democracy's culture, perceptions, and practices inculcate internal nonviolent conflict resolution which are, in turn, practiced in their external relations with other states. If this were true, a democracy's international interaction will reflect these influences in their military, economic, and political exchanges. Focusing on the military aspect of international relations supporting national security, this thesis evaluates if democracies historically tended toward more humanitarian approaches. Did the development and application of democratic state air power doctrine support the notion that democracies tend to be peaceful international actors? At stake is the direction of United States' national security policy and whether it will be based on an idealistic view of international interaction--the "prism of peace"; or whether it should continue to be founded with a realist's eye toward interstate relative power considerations.

TABLE OF CONTENTS

I. INTRODUCTION 1
A. BACKGROUND 1
B. PURPOSE 2
C. RELEVANCE 3
D. METHODOLOGY 4
E. DELIMITATIONS 5
F. RESEARCHER'S WORK SETTING AND ROLE 6
G. RESEARCH DESIGN 7

II. ASSESSMENT OF THE DEMOCRATIC PEACE THEORY 11
A. INTRODUCTION 11
B. ANTECEDENTS OF THE DEMOCRATIC PEACE THEORY 12
C. REALISM 17
D. SYNOPSIS 21
E. ASSESSMENT OF THE THEORY 21
1. The Structural Case 23
2. The Normative Case 28
3. Synopsis 37
F. CONCLUSION 38

III. BRIDGING THE GAP BETWEEN EXPECTED DEMOCRATIC BEHAVIOR AND AIR POWER DOCTRINE 41
A. INTRODUCTION 41
B. INTERNAL CHARACTERISTICS OF DEMOCRATIC STATES 42
C. MILITARY POWER AS A CULTURAL EXPRESSION 44
1. Primitive Warrior Societies 45
2. The Nomadic Warriors 47
D. THE STRATEGY PROCESS 50
E. THE DOCTRINE STRATEGY RELATIONSHIP 56
F. SYNOPSIS 59
G. CONCLUSION 62

IV. FOUNDATION FOR ANALYSIS 65
A. INTRODUCTION 65
B. GLOSSARY OF TERMS 66
C. HISTORICAL OVERVIEW 67
1. Factors Affecting the Development of Air Power 67

2. Recurrent Themes in the Development of Air Power Theory 72
3. Synopsis 87
D. HUMANITARIAN CONCERNS OVER AIR POWER 89
E. CONCLUSION 96

V. CASE STUDY ANALYSIS: *L'ARMEE DE l'AIR* 99
A. INTRODUCTION 99
B. FRENCH AIR POWER THEORY 101
C. THE DEVELOPMENT OF FRENCH AIR DOCTRINE 109
D. *L'ARMEE DE l'AIR*: FORCE STRUCTURE AND ORGANIZATION .. 115
E. EVALUATION OF FRENCH AIR POWER EMPLOYMENT 123
F. CONCLUSION 127

VI. CASE STUDY ANALYSIS: THE ROYAL AIR FORCE 131
A. INTRODUCTION 131
B. BRITISH AIR POWER THEORY 132
C. THE DEVELOPMENT OF BRITISH AIR DOCTRINE 137
1. Post World War I and 1920's Air Power Doctrinal Development .. 137
2. RAF Doctrinal Development in the 1930s 145
3. Synopsis 152
D. RAF ORGANIZATION AND FORCE STRUCTURE 154
E. EVALUATION OF BRITISH AIR POWER EMPLOYMENT 167
F. CONCLUSION 173

VII. CASE STUDY ANALYSIS: THE UNITED STATES ARMY AIR FORCE .. 177
A. INTRODUCTION 177
B. UNITED STATES AIR POWER THEORY 179
C. THE DEVELOPMENT OF UNITED STATES AIR DOCTRINE 188
1. United States' Air Power Doctrinal Development in the 1920s 189
2. AAF Doctrinal Development in the 1930s 198
3. Synopsis 202
D. AAF ORGANIZATION AND FORCE STRUCTURE 204
E. EVALUATION OF AMERICAN AIR POWER EMPLOYMENT 214
F. CONCLUSION 220

VIII. CONCLUSION 225

LIST OF REFERENCES 237

INITIAL DISTRIBUTION LIST 243

LIST OF FIGURES

1. Research Design Schematic 8

2. The Strategy Process 55

3. The Doctrine-Strategy Relationship Model 58

4. *Armee de l'Air* Peacetime Command Structure, 1938 120

5. *Armee de l'Air* Wartime Command Structure, 1938 122

LIST OF TABLES

1. Alleged "Democratic" Wars. 31

2. Dispute Behavior of Politically Relevant Interstate Dyads, 1946-1986 32

3. French Military Aviation Reductions After World War I 106

4. Plan V Aircraft Production Projection and Actual Production Totals. 118

5. German and Allied Aircraft at the Beginning of the Battle of France, 1940. . . . 125

6. RAF Bomber Command's Operational Aircraft, 1938 150

7. Scheme M Aircraft Production Plan, November 17, 1938 164

8. Force Structure of German Air Force and the RAF, September 1, 1939. 165

9. Initial Aircraft Orders for Air Corps Expansion, 1938-1939. 208

10. Authorized Air Corps Force Structure, Second Aviation Initiative, 1941. 210

11. AWPD-1 Military Aircraft Production Requirements, 1941. 213

ACKNOWLEDGMENTS

I want to thank my family for putting up with me as I completed the Naval Postgraduate School National Security Affairs Thesis Program. Joanne, Evan, and Keegan put up with my absences and work habits much better than I did. There is no way in which I can show my appreciation except to give back as much time as possible that was spent trying to research this thesis. My successful completion of this project had a lot to do with your tolerance, patience, and understanding. I love you all very much.

Professor Moyano's assistance in completing this project is duly noted. She imparted invaluable advice, outstanding proofreading, and exceptional service in the long months it took to get this project underway. At a time when it was difficult to get a thesis advisor, she did not hesitate to offer her knowledge and expertise. She displayed all of the qualities one requires for thesis advisor: dedication, enthusiasm, timeliness, insightful critique instead of criticism, and unwavering support. Thank you for making a significant difference.

Finally, a good word about the SO/LIC curriculum at the Naval Postgraduate School. This is the curriculum that can make a difference in Special Operations. There is no other like it and this course of study has already paid fabulous dividends in my understanding of all aspects of my work and the political environment that shapes it. Thanks to Gordon McCormick and Jennifer Duncan for doing their best to make the SO/LIC Master's program as outstanding as it is. I very much appreciated your time and effort to improve our curriculum. Best wishes to you and the rest of the staff in the National Security Affairs Department.

EXECUTIVE SUMMARY

This thesis examines the external actions of democratic states to determine if their conduct supports the expected behavior suggested by the democratic peace theory. The argument for democratic peace establishes a causal link between the culture, perceptions, and practices of democratic societies and democratic peacefulness. A democracy's culture, perceptions, and practices creates the conditions that allow for non-violent, internal conflict resolution. These democratic conditions are manifested externally when a democracy acts internationally. To test for this democratic peacefulness, it was imperative to test the way that states behave toward other states. States act internationally when they have the interest and capability to do so in three ways: militarily, economically, or in the shaping of opinion. To appropriately test for the democratic peace, an examination of one of these areas should reveal whether a democracy will act in the manner prescribed by the Democratic Peace Theory.

The military aspect of state interaction was chosen because it determines the outcome of any hostile interaction, and to a greater extent, the ability to act at all. Examining a democracy's military establishment, it was necessary to forge the link between expected state behavior and manifestations of actual external behavior. This was accomplished by acknowledging that a state's use of military force is always, as Clauswitz stated, political. It is also recognized, however, that military force is a cultural act where society sets the boundaries of acceptable conduct. If politics determines the "why" of an action, then culture determines the "how." Within the military realm of state activity, the only area where this occurs is in the formulation of national strategy.

A component of national strategy that determines the correct application of national instruments in the use of power is military strategy. How the instrument is wielded is a reflection of military doctrine--a belief based upon historical evidence as the best way to do things. Therefore, the test for democratic peacefulness should be founded in an examination of one aspect of military doctrine.

Air power doctrine was chosen because it was founded on a state's belief in the correct way to conduct air operations and was subject to the influence of a society's

culture, perception, and practices. Since these influences form the definitive argument for the democratic peace theory, it is possible to examine the doctrine and its eventual application to see if it supports the theory of democratic peace or runs counter to it.

The case study analyses revealed that both Great Britain and the United States applied air power in World War II in a most inhumane manner when they conducted area bombing of civilian populations. In its most heinous form, Britain and the United States also firebombed cities to destroy the enemy's capacity to wage war. Entire sections of enemy cities were targeted because they contained war producing factories, but this led to the collateral and wanton killing of non-combatants. Not only did this behavior *not* conform to the expected democratic state conduct as proposed by the Democratic Peace Theory, it also deviated from the state's air power doctrine.

This highlights the most important point of the case study analyses. These three democracies held that air power should only be used against targets that are militarily relevant in accordance with their doctrines. To that end, their early application of air power in war reflected respect for the non-combatant status of the enemy civilian. In all three case studies, air power doctrine illustrated the *intent* of democratic state air power application. All three democracies intended to wield air power in either a defensive or deterrent capacity. This included considerations for civilian populations.

Were the case study analyses to stop here, at the question of doctrine, it would be relatively easy to support the principles and concepts supporting the Democratic Peace Theory. The idea behind the theory, however, is that democracies will exhibit a uniformity of conduct in international relations. This conduct will be based upon the concept of democratic peacefulness which is inculcated in society through the influence of their culture, perceptions, and practices. In examining the conduct of air operations for all three states, the French appear to be the only state that acted in accordance with the tenets of the Democratic Peace Theory. Their culture, perceptions, and practices inhibited their conduct and the indiscriminate bombing of German civilians did not occur. The British and the Americans were not so inclined to extend the hand of peacefulness to enemy civilians. It appears that the primacy of national objectives, and the practical fulfillment

of those goals, influenced the actions of the RAF and AAF commanders to conduct inhumane bombing operations.

This evaluation of air power doctrinal development should encourage some measure of reflection concerning the expected uniformity of conduct as proposed by the Democratic Peace Theory. An evaluation of air power doctrine is but one aspect of state interaction within the formulation of military doctrine. What is significant is that air power doctrine was the best guess of how to use air power and an indicator of state intent. Having determined the best way to apply air assets; bounded by the culture, perceptions, and practices of each country, each democracy established the force structure and organization that they thought would exploit air power to its fullest potential. This led to three variations of air power development with three different results--two of which displayed inhumane behavior. The following conclusions were reached:

1. The development of air power doctrine tends to support the notion that democracies intend to act with humanitarian regard for civilian lives.

2. The application of air power doctrine will be consistent with its intent until negative circumstances force a doctrinal reevaluation. The reevaluation may force a change in the methods used to achieve national goals.

3. The conduct of air operations by democratic states in World War II was not consistent with each state's air power doctrine. The study shows that doctrine will be replaced when it does not providethe intended result. In doing so, the primacy of the national objective will determine the methodology to achieve that goal. This may include the rejection of any democratic humanitarian values inculcated in the air doctrine.

In the face of national objectives, the democratic intentions of peacefulness or humanitarianism, inculcated from the culture, perceptions, and practices of democratic states, may not dictate the actions of that state in the international arena. There may exist a uniformity of intent, but no uniformity of behavior. Therefore, with regard to the formulation of United States National Security Strategy and foreign policy, the question must be asked: What is the proper basis for the conduct of US international relations? Is is the realist's prism of power, or the democratic idealist's prism of peace?

I. INTRODUCTION

A. BACKGROUND

The hottest debate in United States foreign policy discussions concerns the Democratic Peace Theory. The theory proposes that democratic states do not war with each other. The crux of the argument is that liberalism, as a precursor to both democratic government and democratic peace, creates an international climate characterized by cooperation, negotiation, and compromise. Democracies are supposed to replicate internationally the patterns of non-violent conflict resolution seen at home. This leads to the absence of war. The logical extension of the theory is that the spread of democratic states throughout the world will eventually fulfill man's greatest dream: perpetual peace.

This marks a departure from the political "realist" perspective of international relations as expressed in the writings of Machiavelli, Hans Morgenthau, and Henry Kissinger. In the realist world, a state's power capability is the fundamental determinant of state interaction. Precipitated by recent changes in the international security environments, political scientists now see the opportunity for a paradigm shift away from the "prism of power" in the calculus of international politics. The possibility of non-violent political interaction is alluring for democracies wishing to develop as moral and social entities because it permits the advancement of their most sacred human values interests, and rights.

B. PURPOSE

The objective of this thesis is to determine if democracies externalize their peaceful internal behavior in accordance with the tenets of the Democratic Peace Theory. Are democracies peaceful international actors, as the theory states, or do they interact in an aggressive, bellicose manner? In E.H. Carr's book, *The Twenty Years Crisis 1919-1939*, he writes that power is central to all interstate interaction (Carr 1939, p. 105). States use three categories of power: military, economic, and the power over opinion. Military power is the recognized standard of measurement of a state's interactive capability. The Democratic Peace Theory implies that a democratic state's international behavior tends toward non-violence, appeasement, and conciliatory actions. If this is true, one should observe peaceful democratic behavior when viewing a democracy's political exchanges with other states.

Of particular interest is the manner in which democracies exercise military power. If democratic states are peaceful when compared to their authoritarian neighbors, a reflection of this characteristic may be seen in the way democracies wage war. If the Democratic Peace Theory is correct, authoritarian regimes should wage war with little thought for civilian populations or property. By contrast, the democratic state should have a more humanitarian approach with due regard to those which feel the "terrible hardships" of war (Sherman Vol. 2 1875, p. 126). Do peace and democracy necessarily go hand in hand? If democracies do not exhibit the peaceful behavior purported by the Democratic Peace Theory, the United States must reassess its choice to forgo power calculations in foreign policy decisions.

Before the recent change in the security environment, democracies faced a dilemma concerning the proper role of power when applied in the international arena. There was a fundamental contradiction between a national political system that inhibited the concentration of power, and an international system that required the use of power to protect and enforce the national interest. Democracies have been troubled by their inability to discard power calculations in pursuit of legitimate foreign activities. Because a democratic system of government is seen as moral, to violate those tenets while pursuing the national interest is viewed as immoral and politically untenable.

C. RELEVANCE

The implications of this study are important to the United States as it conducts its foreign policy. The Democratic Peace Theory implies that there is identifiable democratic state behavior. Ambassadors, diplomats, and executives can rely on certain thoughts and deeds when assessing other democracies and can make good decisions in pursuit of the national interest. The United States' National Strategy seeks to promote the spread of democracies because if the theory is true, then they will have secured not only the desired enduring peace but the posterity of the nation. In this type of international environment, the need for realist calculations of power is obsolete.

This approach to international relations is strictly a structural endeavor. The United States hopes to significantly alter the anarchy of the international state system using a method that emphasizes the establishment of institutions to create a system with pacifist tendencies. It disregards a state's strategic decision-making capability and ability to act within a realist's model of political power calculations.

There is danger in taking this approach. If the United States pursues its foreign policy while disregarding global and regional power calculations, these policies may not protect the future of our nation but imperil it. There is a fallacy in the approach which seeks to alter the structure of a state government in order to achieve a desired outcome without addressing the strategic choices of the people inhabiting that state. Can the non-violent democratic values of Western liberal democracies be counted on in the newly democratizing states of Eastern Europe? Are the Balkan countries really the place where the "prism of peace" becomes the paradigm of choice for analysis? Do the people to which we extend Western democratic traditions have an understanding of the liberal tradition that is not dangerous to the United States? And, more to the point, have democracies ever behaved in the manner indicated by the Democratic Peace Theory? Until concrete evidence points elsewhere, our nation's abandoning the realist paradigm may not be the correct choice.

D. METHODOLOGY

The objective of this section is to outline the methodology of this research project. The overall purpose of the thesis is to explore whether democracies act in accordance with the tenets of the Democratic Peace Theory. The theory implies that democratic states behave in a peaceful manner internationally. In their international exchanges, whether through the exercise of military, economic, or other uses of state power, democracies should tend to restrain their use of violent action. This is especially true because of a democracy's regard for civilian populations and their property.

This research project takes issue with the notion that democracies are peaceful international actors. The study hopes to demonstrate that democratic states have a history

of sanguinary external behavior in war-making that runs counter to the tenets of the Democratic Peace Theory. This requires a three-step process that:

1. Analyzes the Democratic Peace Theory to determine the argument that is the most compelling for use as a point of departure for further study;
2. Using the most compelling argument for democratic peace, bridges the gap between the expected external behavior of democracies and the historical manifestations of democratic behavior in their military strategy, specifically Air Power Strategy; and
3. Conducts a comparative case study analysis of Air Power Strategy and its practice in democratic states (France, Great Britain, and the United States) in the decade preceding World War II. This will establish whether the development and conduct of air strategy supports the behavior described by the Democratic Peace Theory.

E. DELIMITATIONS

This thesis does not attempt to emulate previously accomplished studies of the Democratic Peace Theory. The Democratic Peace Theory is assessed for three reasons:

1. To provide the historical basis for the Democratic Peace Theory that places the study in context with the development of United States National Security Strategy and foreign policy;

2. To determine the most definitive argument supporting the proposition that democratic states are peaceful international actors; and

3. To demonstrate sufficient counter examples that do not support the Democratic Peace Theory, thereby opening the door for further analysis.

The researcher understands that there are studies that show democracies to be as war prone as non-democratic states. The Democratic Peace Theory does not purport to address this question, nor does this thesis. The main thrust of this study is to ascertain if the external behavior of democracies has ever conformed with the expected behavior as proposed by the theory. The case study analysis will concentrate on the development of Air Power strategy because states have the capacity to use air power in accordance with the tenets of the theory or in opposition to it. Within the military establishment, only air power has the flexibility to provide humanitarian assistance in addition to an air force's traditional role of projecting military power via the sky. This was demonstrated by the Berlin Airlift in 1948-49, and more recently, the Kurdish relief in Iraq at the end of the Gulf War. Both operations were noteworthy because of their humanitarian resolve to prevent the starvation of thousands using assets previously consigned to wage war.

F. RESEARCHER'S WORK SETTING AND ROLE

The researcher is a major in the United States Air Force and a student in the National Security Affairs SO/LIC curriculum at the Naval Postgraduate School. His primary Air Force specialty is as a Special Operations Instructor Aircraft Commander. He has extensive overseas experience in both the Pacific and European theaters including numerous temporary duty assignments in many developing countries.

The researcher's interest in the subject area began with a review of the Times Mirror Center's poll titled *America's Place in the Post Cold War World* and his study of the *National Security Strategy of Engagement and Enlargement* for the introductory course in International Relations at the Naval Postgraduate School. (Times Mirror Center Poll *America's Place in the World* 1993, and The White House *A National Security Strategy* 1994). He was drawn to this subject because of the fundamental contradictions between the findings of the poll and the direction of the national strategy. The Times Mirror Center surveyed nine groups of American opinion leaders and found two interesting results. Those polled believed that the old American ideals of advancing democracy and human rights are dubious guides for policy today, and a new and diffuse set of national interests should be the basis for a cautious and minimalist US foreign policy.[1]

It was vitally important for the researcher to determine if the national strategy provided a more prudent course for United States' foreign policy or if the elite opinion leadership from the poll gave better guidance. This is because his experiences tend to support the notion that democracies abroad do not act in accordance with the values, ideals, and expectations of the United States. As such, he questions whether the further spread of democracies will indeed promote, protect, and provide for America's posterity.

G. RESEARCH DESIGN

Figure 1 is presented to permit the visualization of the research design. This is to distinguish its central themes and show the links between all three subareas of study.

---

[1]The American opinion groups polled were selected from among the leadership elites outside of the federal government. They included these areas: News Media, Business/Finance, Cultural, Foreign Affairs, Security, State and Local governments, Academics, Religious leaders, and Scientists/Engineers, pp. 42-44.

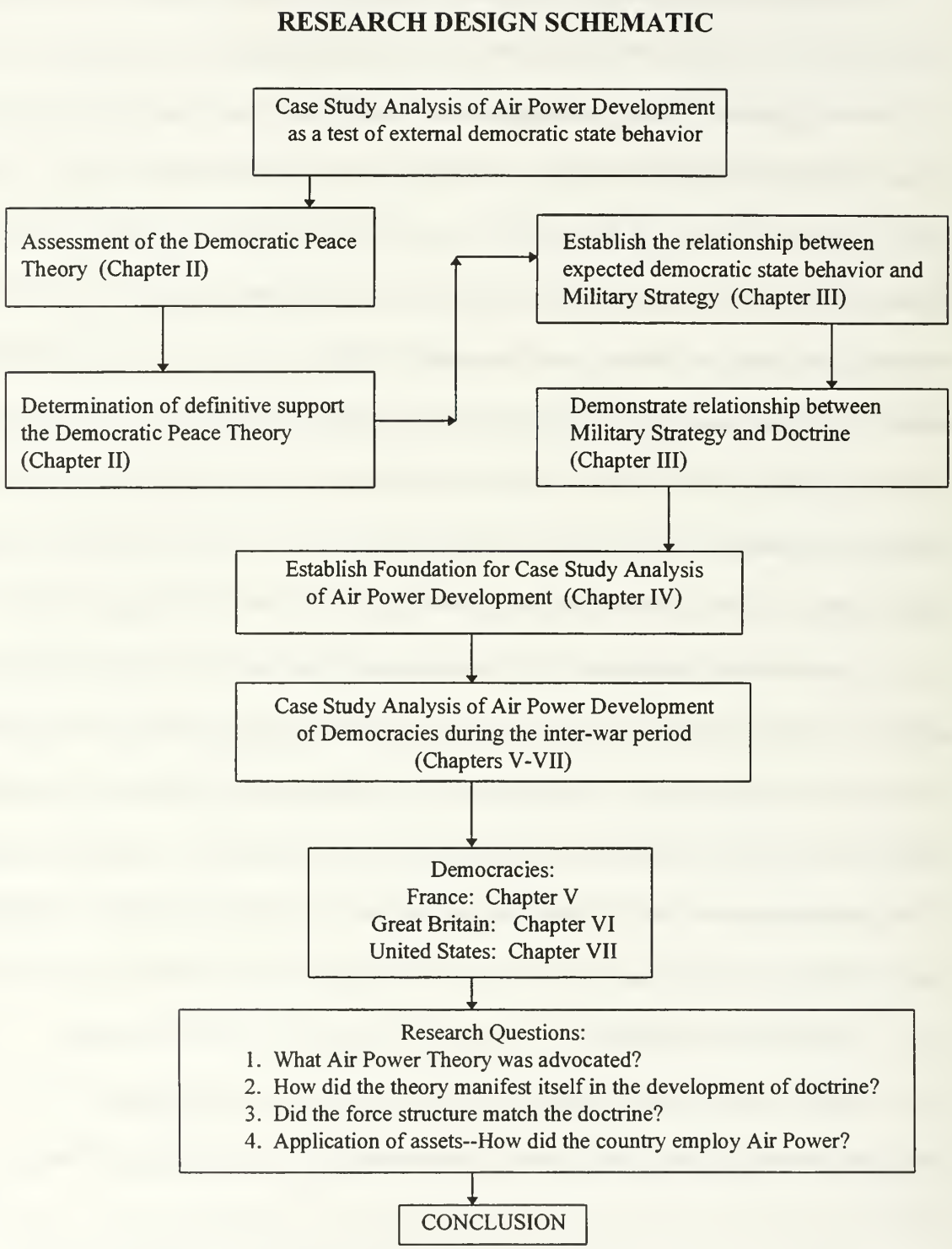
RESEARCH DESIGN SCHEMATIC
Case Study Analysis of Air Power Development as a test of external democratic state behavior
Assessment of the Democratic Peace Theory (Chapter II)
Establish the relationship between expected democratic state behavior and Military Strategy (Chapter III)
Determination of definitive support the Democratic Peace Theory (Chapter II)
Demonstrate relationship between Military Strategy and Doctrine (Chapter III)
Establish Foundation for Case Study Analysis of Air Power Development (Chapter IV)
Case Study Analysis of Air Power Development of Democracies during the inter-war period (Chapters V-VII)
Democracies:
France: Chapter V
Great Britain: Chapter VI
United States: Chapter VII
Research Questions:
1. What Air Power Theory was advocated?
2. How did the theory manifest itself in the development of doctrine?
3. Did the force structure match the doctrine?
4. Application of assets--How did the country employ Air Power?
CONCLUSION

Figure 1. Thesis Research Design Schematic

Chapter II will assess the Democratic Peace Theory by evaluating the two predominant arguments presented by democratic peace theorists. The purpose of the chapter is to determine the most definitive argument supporting the theory for use as a point of departure for the development of the case study analysis.

Chapter III will bridge the gap from the definitive argument for democratic peace to the case study analysis. It accomplishes this by tying together the expected behavior of democratic states with national military strategy. The development of military strategy is reviewed because it provides an area of inter-state exchange whereby the expected behavior of democratic regimes can be examined. The use of strategy is an excellent example of the manifestations of state behavior, especially air power strategy. This is because the use of air power encompasses a broad array of operations that allow behavior to be evaluated according to the most definitive argument of the Democratic Peace Theory.

Chapter IV will provide background information establishing the foundation for case study analysis. The purpose of this chapter is to illustrate that the development of air power was subject to many significant influences. These influences shaped the debate in every country over the roles and missions that this new service arm should play in pursuit of national strategy. In this debate, there were recurrent themes that helped shape the force structure and application of air assets. Also offered is the international community's attempt to constrain the potential of air power. This is to show that there were no blind eyes with regard to the destructive power of aircraft. Ultimately, the type of air strategy and doctrine adopted by each country reflected their assessment of the potential usefulness of air power measured against their ability to fulfill that potential.

In Chapters V, VI, and VII, the air power strategy of Western democracies, specifically France, Great Britain, and the United States, will be analyzed using the questions listed in the research design schematic. The research questions are:

1. What air power theory was advocated?
2. How did this manifest itself in the development of doctrine?
3. Did the force structure match the doctrine?, and
4. What was the application of air assets--how did the state wage the air war?

Chapter VIII will summarize and complete the analysis by drawing conclusions based on the evidence. It will also comment on the implications of the study for the development of United States' national strategy. This chapter will finish by offering possible explanations of the results with recommendations for further study.

II. ASSESSMENT OF THE DEMOCRATIC PEACE THEORY

A. INTRODUCTION

> *. . . Thou would have accomplished all that man seeks on earth--that is, someone to worship, someone to keep his conscience, and some means of uniting all in one unanimous ant heap . . . . There have been many great nations with great histories, but the more highly they were developed the more unhappy they were, for they felt more acutely than other people the craving for world-wide union.*

This passage from Fyodor Dostoevsky's *The Grand Inquisitor* highlights an ideal of universality that is persistent in the study of international relations with regard to enduring peace. It is so persistent that the United States pursues the ideal of universal peace in its foreign policy and national security strategy. The pursuit hinges upon the belief that democratic regimes do not war with each other. President Clinton, in his 1994 State of the Union address, emphasized this by stating, "Democracies don't attack each other..." He further declared that it is in the interests of the United States to "build a durable peace . . . to support the advance of democracy elsewhere." (Clinton 1994, p. 262) Anthony Lake, the President's Assistant for National Security Affairs, previously stressed this position and called for a new foreign policy based upon Woodrow Wilson's international vision. In a speech delivered at Johns Hopkins University on September 19, 1993, he agreed with Wilson's insight that our national security is affected by "the character of foreign regimes." (Lake 1993, p. 15)

As the United States propagates democracy abroad in hopes of establishing a lasting peace, academics issued a flurry of arguments trying to explain "Democratic

Peace." This chapter will assess the proposition that democracies do not war with each other by reviewing the Democratic Peace Theory. This review includes the philosophical underpinnings of the perpetual peace as envisioned by Immanuel Kant. Kant was not the first to study the problem of perpetual peace but provided the fundamental intellectual framework for the establishment of peace today. Contrasting Kant, the "realist" perspective of international politics is also examined. This is important because the issue of democratic peace provides an alternative and opposite explanation to political realism as to the behavior of states within the international system.

There are two arguments made by scholars supporting the Democratic Peace Theory, one structural and one normative. Each argument will be examined by answering these questions:

1. What constitutes the argument;
2. What is the causal logic;
3. Is this argument compelling; and
4. Is there disconfirming evidence?[2]

B. ANTECEDENTS OF THE DEMOCRATIC PEACE THEORY

With the Treaty of Westphalia in 1648, the birth of the modern nation-state was assured. Also assured was the link of war to state political will through the recognition of sovereignty. Monarchs using sovereignty as a legal justification, embarked on wars that

[2]John J. Mearsheimer "The False Promise of International Institutions" *International Security* Vol. 19, No. 3 (1994). This article provides the basis for the methodology used to review the Democratic Peace Theory.

were decried by certain enlightened intellectuals. These intellectuals were the Abbe Saint-Pierre, Jean Jacques Rousseau, and Immanuel Kant.

All three men embraced the ideal of peace in opposition to the monarch's ready acceptance of war. They pursued similar concepts as to the establishment of peace in hopes of preventing future devastation. Saint-Pierre sought a strong European federation in order to maintain an established rule of law. It required a renunciation of war, procedures for arbitration, and the creation of a common supranational army. A Senate of European states would settle disputes. Any member state not submitting to the proper regulations or decisions of the federation, or preparing for war, would be subject to the federation's common army. (Hinsley 1957, p. 39) It is interesting to note that Saint-Pierre allowed the use of force for the maintenance of peace--a contradiction of his entire concept.

Although outwardly appealing, this idea never came to fruition. This was because it required the monarchs to relinquish sovereignty in regard to international disputes and to disband national armies. To this they would never agree. Aside from external forays, part of the usefulness of having a national army was to ensure domestic tranquility and protect the monarch's internal position. Loss of this tool could lead to his downfall.

Rousseau built upon Saint-Pierre's vision realizing that the original work was not realistic. His concept was one where a strong federation of states, committed to enduring peace, merged to ensure international lawfulness. This required all European states to submit to federal rule. Similar to Saint-Pierre's ideal, Rousseau differed from the former in believing that there was no right to leave the federation. Internal intervention in the affairs of member states was permissible to maintain the peace. (Hinsley 1957, p. 53) He

also concluded that kings would never relinquish their armies because war was too profitable. Rousseau abandoned his ideal as being not impracticable, but impossible. (Negretto 1993, pp. 501-523)

Kant wrote his essay "Eternal Peace" knowledgeable of Saint-Pierre's ideal federation but cognizant of Rousseau's comments about European monarchs. His ideal of peace proposed an international society mindful of the dangers presented by powerful states and purposeful kings. His essential premise was that mans' natural state was one where they "hurt each other." This is also true of nations. Any enduring peace, therefore, must be established by agreement. (Hinsley 1957, p. 62)

Additionally, Kant rejected the notion of *bellum justum* that allowed moral justification of aggressive war. Current political thought protected all warfare under the auspices of sovereignty. As such, the international community sought to formalize war to limit its destructiveness while providing moral and legal guidance to its conduct and cessation. It was hoped that this formalization could restrict the amount of devastation but still allow states to exercise their political will. Kant thought that this was wrong because it permitted moral justification for an act (war) that was morally indefensible. (Negretto 1993, pp. 501-523)

Mindful of these concepts, Kant wrote his essay in two sections followed by two additions and an appendix. The sections delineate a set of preliminary (necessary) conditions and a set of definitive (sufficient) conditions for the establishment of the peace ideal. Both sets of conditions are important for understanding the significance of his essay. They are the guideposts for the foundation of present day conceptions of international order. They are also the model for international institutions promoting peace.

The necessary conditions for peace spring from Kant's renunciation of justified aggressive war. According to Kant, the only legal warfare was defensive and conducted by volunteer militias. The conditions are neatly summarized in Gabriel L. Negretto's article "Kant and the Illusion of Collective Security." They are:

1. states freely restrict their right to make war;
2. states freely restrict their right to interfere in another's internal affairs through a treaty of non-aggression;
3. an effective and progressive dismantling of national armies is undertaken; and
4. states renounce the right to wage punitive wars against other sovereign states.

The sufficient conditions for international peace were written in Section 2. It is here that the ideal pursued by the United States is established. Kant wrote that international peace would be created when:

1. all states adopted a republican form of government;
2. states formed a "federalism" of states; and
3. states created "cosmopolitan law" guaranteeing the right of world citizenship to all people.

Kant's idea of republicanism entailed state governments formed by constitutions and subordinate to the rule of law. Republicanism was appealing because it allowed for citizen participation in the government through a representative process. He further wrote

that these republics were to divide the creation of law from the administration of law by a separation of the legislative and executive branches. A republic's constitution required the freedom of all men as members of society, dependence on a single legislature for law and the recognition of the equality of all citizens. (Hinsley 1957, p. 70) Today, many scholars consider democratic regimes to be the equivalent of Kant's republican states.

Kant wrote that republican governments offered the best prospect of eternal peace and gave the following reason:

> If . . . the consent of the citizen is required in order to decide whether there should be a war or not, nothing is more natural than that those who would have to decide to undergo all the deprivations of war will very much hesitate to start an evil game . . . . By contrast, under a constitution where the subject is not a citizen and which is therefore not republican, it is the easiest thing in the world to start a war. (Friedrich 1948, p. 251)

Viewing Kant's second reason, in combination with republican governments, it seems that Kant has proposed again a world government. There is a dilemma in Kant's reasoning because the rights secured in a state republic may be lost if subordinated to a world authority. It is here that one must understand that the world federalism envisioned is not akin to a peace treaty but to a pacific union (*foedus pacificum*). (Friedrich 1948, p. 256) These are states that do not relinquish their sovereignty but organize collectively to prevent the outbreak of war.

Kant sees the pacific union as one that tries to end all war and not secure the additional power of any state through a single war. It is proposed to secure the freedom of states and those also joined with it. He wrote:

> . . . the positive idea of a world republic must be replaced by the negative substitute of a union of nations which maintains itself, prevents wars, and steadily expands.(Friedrich 1948, p. 257)

The manifestation of Kant's pacific union is today's United Nations. Through this organization, international disputes have a forum for mediation and conflict resolution. The United States, by advocating the spread of democracies and supporting the UN, seeks the possibility of perpetual peace as envisioned by Kant. There still remains substantial disputes that show this ideal has far to go. Although the coalition that conducted the Gulf War shows adherence to Kant's treatise, the current Bosnian conflict displays a situation where his principles fail. Pursuit of national interests and power politics subordinate effective collective action to establish regional peace.

With the fall of the Soviet Union and East European communism, the United States slowly diminished its national military forces seemingly in accordance to Kant. The United States still commits, however, to a force structure required in two "nearly simultaneous" major regional conflicts. Although cognizant of the requirement for Kant's peace, the US reinforces the reality of power projection as the means to national interest. They may be reluctant to use force; may see the spread of democratic regimes; and may pursue the ideal of peace through the UN; but it does so knowing the necessity of power in a still hostile world. "Realist" principles, it seems, have not been displaced.

C. REALISM

The genesis of "Realpolitik" has its roots in Machiavelli's *The Prince*. Because of this work, Machiavelli has gained a reputation as having authored an immoral blueprint for absolute rulers. Critics charge that his credo is "the ends justifies the means" because he neatly separates morality from politics. Closer examination of his work reveals that the author did not remove morality from the calculus of state rule. Machiavelli recognized the primacy of politics as created by natural social conflict. A prince must

always be concerned with the interest of state and that sometimes requires the abdication of moral values. Machiavelli writes that the rulers of state must:

> seem merciful, faithful, humane, forthright, religious, and to be so; but his mind should be disposed in such a way that should it be necessary not to be so, he will be able and know how to change to the contrary . . . . he should not stray from the good, but he should know how to enter in to evil when necessity commands. (Machiavelli 1532, p. 135)

According to E.H. Carr, in his book *The Twenty Years Crisis 1919-1939*, Machiavelli represents the foundation of "realist" thought and practice. Machiavelli's political science is a reaction against "utopianism" that has at its basis a rejection of "the way things ought to be." Realism judges the world by the way it is. Carr writes that the realist foundation is based on three premises:

> . . . history is a sequence of cause and effect, whose course can be analyzed and understood by intellectual effort but not . . . directed by 'imagination.' Secondly, theory does not . . . create practice, but practice theory. . . Thirdly, politics are not . . . a function of ethics, but ethics of politics.

The essence of political realism is that while morality is important, there can be no "effective morality" without "effective authority." Morality is the product of power. (Carr 1939, p. 63)

Realism is different from the idealism of Kant's perpetual peace in that it does not purport to enforce a standard of peace on world affairs. Realism takes the world as it is and acts upon what the world presents. Both realism and Kant's idealism work under the same assumption that man, in his natural state, is bellicose, untrusting, and unrestrained. Since all states are products of man's social and political associations, constructed to ensure protection from other men and their associations, they also possess these same qualities. They are bellicose and untrusting but are restrained solely by the force of

opposing states. This paints a picture of international interactions that is conflictual. The international system is one where order, justice, and morality are exceptional. Force is the final arbiter of all political interaction.

In the international system, the world operates in a state of anarchy. This anarchy describes a system with no ultimate authority. It does not describe disorder per se, because realism supposes an ordering system of states based upon power capability. The anarchy implies pessimism with regard to moral progress and human possibilities. (Gilpin 1986, p. 304) Ethical standards may exist but they are not determinants in possible interstate conflicts.

A state's power capability is the fundamental aspect of realism. States possessing sovereignty use their power in decidedly self-interested acts in order to provide for their own security, thus ensuring state perpetuation, and make relative power gains compared to other states. Carr notes that a state's power capability is indivisible but can be analytically divided into three parts. These are military power, economic power, and the power over opinion. (Carr 1939, p. 108) The *"ultima ratio"* of any state power capability rests with its military. It is the deciding issue between confrontation versus accommodation.

This poses a dilemma for all states operating in the anarchy of international politics because as they use the military tool to ensure their survival, opposing states see only the offensive potential of their military might. This causes states to recognize that they may be threatened by superior military force. They become fearful and untrusting of others because "intent" can never be determined with certainty.

Uncertainty breeds caution and forces states to act rationally with other states. This highlights another problem with the anarchic system. It is impossible to obtain

perfect information about all situations. Rational acts perpetuated with imperfect information may imperil a state's survival and endanger its relative position. This produces a recognizable pattern of state behavior.

In John Mearsheimer's article, "The False Promise of International Institutions," he describes states as political units that "merely aim to survive, which is a defensive goal." (Mearsheimer 1994, p. 7) However, the workings of the international system create an impelling force for states to act and think aggressively due to relative power considerations. The more relative power that a state can wield, the more it can assure its own security. States interact with others wary of power capability. They seek to maximize gains to the detriment of other nations. The most obvious power tool used for this purpose is military force. A strong military enhances state security and allows a state to take advantage of others in pursuit of national interests. The overall systemic impact of this logic is to produce fear and distrust between states.

States fear other states as suspicion guards all political intercourse with potential adversaries. States prepare for the worst by increasing their relative power through increases in military power. Pursuing their own survival, they use internal mechanisms to increase their security because they cannot count on a world government authority or other states for assistance. This exemplifies the "self-help" concept where states are the sole guarantors of their existence.

When states employ the "self-help" concept, they do so to increase their military power so as to ensure state security. This purely defensive motive reduces the security of neighboring states. Neighboring states feel threatened and respond with their own "self-help" initiatives to increase their own power and enhance their security. This "balancing

behavior" is the basis for security competition. (Posen 1984, p. 61) Balance of power considerations, whether regional or global, become significant to states seeking to avoid war. A state will not only use "self-help" to create balance, but it also will ally with other nations as well. For the realist, this is the foundation of international cooperation. At the core of any international agreement, power capabilities and a state's concern for security define the nature and extent of cooperation.

D. SYNOPSIS

The proposition that democracies do not war with each other sharply contrasts with realist explanations of the international system. Evaluating this proposition is important because the United States, as the most powerful state actor, must decide to pursue international policy along state power considerations or reject that in favor of pacifist democratic theory. If the United States' security is indeed linked to the spread of democracy, then the foreign policy of President Clinton is correct in discarding a world viewed through the prism of power. However, if these theories are mere extensions of an unattainable ideal, pursuit of the democratic peace in foreign policy may have dire consequences. For this reason it is important to assess the dominant arguments in favor of the democratic peace and ascertain if they should be the guidepost of American foreign policy and international strategy.

E. ASSESSMENT OF THE THEORY

The essence of the Democratic Peace Theory is that democracies seldom, if ever, war with other democratic states. It is based upon liberal ideology that recognizes the rights of individuals to pursue their destiny and material well-being with little or no government influence. In a democracy, the government is assembled for the convenience

of the people and is subject to their will. The people are the source of all government power and as such are sovereign. The advocacy of liberal thought and the institutionalization of those ideals may impact a democracy's willingness to use coercive international measures up to and including war. In John M. Owen's article, "How Liberalism Produces Democratic Peace", he neatly traces the logic underpinning the democratic peace based upon liberal ideals:

> Liberals believe that individuals everywhere are fundamentally the same, and best off pursuing self-preservation and material well-being. Freedom is required for these pursuits, and peace is required for freedom. . . . Thus all individuals share an interest in peace, and should only want war as an instrument to bring about peace. Liberals believe that democracies seek their citizens' true interest and that . . . they are pacific and trustworthy . . . Liberals thus hold that the national interest calls for accommodation of fellow democracies, but sometimes calls for war with non-democracies. (Owen 1994, p. 89)

Based on Owens' article, and evidenced by United States participation in wars since 1945, democracies do engage in war with non-democratic states. What is remarkable is the absence of war between democracies. Jack Levy, in his 1986 article "Domestic Politics and War," noted that this "absence of war between democracies comes as close as anything we have to an empirical law . . ." (Levy 1986, p. 11) Current debate on this topic produced alternative explanations for the absence of democratic war and are: Democracies possess structural constraints based upon institutional characteristics; and the shared norms and cultures of democracies constrain them from war with each other. (Layne 1994, pp. 8-9)

The following sections of this chapter will critique the predominant arguments supporting the Democratic Peace Theory as espoused by the democratic peace theorists.

These arguments were presented in concise form in Christopher Layne's article "Kant or Cant, the Myth of the Democratic Peace." Of the three arguments presented, the first review relies on Layne's critique concerning the restraints posed by public opinion. For the remaining two, Bruce Russett's supporting arguments from his book *Grasping the Democratic Peace* are evaluated since Russett's is the best known and most analyzed study of the subject.

1. The Structural Case

The case for structural constraints preventing democratic war has two variants identified by Christopher Layne. The first explanation is that democracies have elected representative governments that are beholden to their citizens. If the elected officials do not act in accordance with the citizens as expressed by their public opinion, then they will fail to be reelected. Since matters of foreign policy war are publicly debated, policy makers and elected officials are more sensitive to the public will and will be properly restrained from engaging in war. The cost to the public will be too high. This also implies that the public tends to be more peaceful so that public opinion would be against the use of military force.

At first glance, this appears to be a compelling argument. Jack Levy writes, however, that there "appear to be numerous examples . . . of exactly the opposite: of political elites being pressured into war, or into adopting more hard line policies than they would otherwise prefer, by a hawkish public." (Levy 1986, pp. 13-14)

Walter Lippman writes of the "democratic malady" whereby the errors of public opinion have imposed a veto on the "judgments of informed and responsible officials." He further notes:

> They have compelled the governments, which usually knew what would have been wiser or was necessary, or was more expedient, to be too late with too little, or too long with too much, too pacifist in peace and too bellicose in war . . . (Lippman 1955, p. 20)

The implication is that public opinion is often capricious and tends to follow events. Public opinion, lacking the information possessed by government officials, cannot be counted upon to make objective, informed decisions concerning war and peace. If true, the public is not a reliable source of restraint when it comes to preventing democracies from engaging in war, regardless of an adversary's regime type. In Layne's article, for example, he makes the argument against United States' public opinion guiding the administration away from war. In the Spanish-American War of 1898, he notes that public opinion "impelled the reluctant McKinley administration" in to war. He further writes that in 1914, public opinion in England and France also favored war. (Layne 1994, p. 13) This begs the question of whether the populations of democratic states are inherently peaceful. Does this indicate that they do not necessarily embrace peaceful liberal values and, therefore, tend not to inhibit their governments' bellicose actions?

An example discounting public opinion as an inhibitor of democracies using force is David Burbach's paper "Presidential Approval and the Use of Force." Burbach used Gallup polls to measure public opinion regarding approval of the President using force. He found that in the United States' uses of military force dating to 1958 that significant rises occurred in public approval ratings of the President. On average, he found that Presidential approval ratings climbed 4 percent. (Burbach 1994, pp. 5-10) This does not always occur, however, as President Nixon's order to renew the bombing of Hanoi in 1972 resulted in a decline of public approval ratings.

The most recent clear example of favorable public opinion after presidential authorization of force was the Gulf War. Burbach writes, "Immediately after sending troops to Saudi Arabia, President Bush's approval rating climbed from 60 to 74 percent, and it skyrocketed once the war began. Between January 11th and January 24th, the President's Gallup rating climbed 19 points (from 64% to 83%)." (Burbach 1994, pp. 5-10) This indicated that democracies may be wary of public opinion when debating issues requiring force but the public is not always against using force because of the expected costs. This evidence does not support the argument that public opinion will restrain the bellicose activities of democratic governments.

The second variant of the structural case focuses on the internal democratic political structures. In Bruce Russett's book, *Grasping the Democratic Peace*, he outlines the arguments for both the structural and normative cases by first presenting empirical evidence; defining key terms; and then attempting to understand why the phenomenon occurs. His research will be evaluated by reviewing his structural argument first because there are sufficient recent examples discounting the thrust of that argument. This will be followed by a review of the normative argument evaluated using his statistical evidence and review of his key terms.

Russett offers this structural argument:

> In democracies, the constraints of checks and balances, division of power, and the need for public debate to enlist widespread support will slow decisions to use large-scale violence and reduce the likelihood that such decisions will be made. (Russett 1993, p. 40)

He further states that other democratic state leaders will perceive democracies similarly and expect these internal constraints to prevent surprise attacks. In conflicts with non-

democracies, the non-democracy leadership will not be similarly constrained and will risk the use of violence against democracies as well as press for greater concessions. Therefore, one will see more conflict pitting democracies and non-democracies as opposed to two democratic states. From this outline, one should expect to see democracies, internally constrained, being slow to act internationally in pursuit of national interest. This will occur regardless of the other state's regime type since the internal workings of any democratic state will be the same for all crises. Therefore, one can cite examples pitting democracies against non-democratic states to check for internal constraints on the use of military force or war.

Using the United States as an example, it does not appear that a democracy exhibits an inability to react quickly to international events. In fact, the United States acts often without the benefit of internal debate, thereby bypassing the "checks and balances" on state behavior. Recent examples include President Reagan's ordering of the invasion of the island of Grenada in 1983; the raid on Libya in response to the Berlin disco bombing in 1987; President Bush authorizing the invasion of Panama to capture General Noriega in 1989; and the sending of troops to Saudi Arabia for Operation DESERT SHIELD in 1990. Another example is the Cuban Missile Crisis. President Kennedy used a special committee to weigh the options and make decisions "unhitched from the bureaucracy" so as not to impede his ability to find a solution. (Allison 1971, p. 9) While each of the recent examples in Grenada, Libya, and Panama are correctly viewed as minor uses of military force for limited means, these actions are rightfully acts of war. The use of force against the territorial integrity of other states is prohibited by Article 2(4) of the UN Charter. (Henkin 1991, p. 39) Force is only permitted under Chapter VII, Article 51,

when there are threats requiring individual or collective self defense or under the auspices of collective security. (Scheffer 1991, p. 126)

In the United States, the Congress maintains the platform for "The Great Debate" and provides the checks and balances of unilateral action by the executive branch. In the Constitution, Congress alone has the ability to declare war. Yet since World War II, the United States participated in three wars (Korea, Vietnam, and the Persian Gulf) never formally declared by Congress. The United States committed troops to Korea under a United Nations' resolution; to Vietnam with the Gulf of Tonkin "blank check"; and to the Gulf War by a congressional vote. The internal institutional constraints written in the Constitution were not used to halt the executive from deploying troops and engaging in acts of war. Also, in 1973, Congress created and passed legislation via the War Powers Act to further weaken the President's ability to engage military force abroad without congressional approval. This "check" has never been used but the coercive use of United States' military might continues.

From these examples, one can see that the United States is not necessarily constrained by an internal balancing system. Even if the institutions are founded on liberal, peaceful ideology so as to negate the state's ability to engage in military actions, the executive branch has a history of bypassing these institutions in order to act quickly. This tends to not support this variant of the structural argument. Coupled with the disconfirming evidence of the "public opinion" argument, the onus of support for the Democratic Peace Theory must derive from the normative case.

2. The Normative Case

This argument explains that democratic peace results from the shared culture, practices and perceptions of democratic states. Summarizing Russett's argument, democracies founded upon liberal ideology believe other democracies are the same and subscribe to peaceful methods of conflict resolution. The normative argument states that democratic states will externalize their internal decision-making processes with other democracies. Since cooperation, compromise, and non-violence are the hallmark of democratic internal decision-making, democracies assume that other democratic states possess these characteristics as well and will be predisposed to this behavior. (Russett 1993, p. 35) Building on this behavior, democracies enjoy common trust and cooperation with each other. Ultimately this leads to a history of peaceful negotiations in lieu of violent conflict resolution. As the community of democracies grows, "they renounce the option to use (or even threaten to use) force in their mutual interactions" (Layne 1994, p. 11).

The Democratic Peace Theory offers a compelling argument for expanding democracy internationally. If democratic norms maintain peace, then there should be evidence showing a lack of violent conflict resolution between democratic states. In Russett's research, he provides statistical evidence that supports the theory. Reviewing all wars since 1915, he finds that there are no cases of democratic wars. He cites that there were approximately 71 interstate wars involving 270 participants and there were no "clear-cut" cases of democracies warring with other democracies. (Russett 1993, p. 16) Russett also explains away alleged anomalies through adherence to definitions of democracy, stability, and war. Russett defines a democracy as a state that:

> is usually defined with a voting franchise for a substantial fraction of citizens, a government brought to power in contested elections, and an executive either popularly elected or responsible to an elected legislature, often also with requirements for civil liberties. . . (Russett 1993, p. 14)

Russett acknowledges the requirement for civil liberties but uses a more minimalist definition of democracy for his study. He does not include two important features of a democracy: civil rights and free market liberties. They are omitted because Russett finds that the precise application of these terms is "culturally and temporally dependent." (Russett 1993, p. 15) As history has progressed, what constitutes a democracy has evolved so that the term has different meanings at different times. Omitting these two features allows for more states to be classified as democracies. This increases the likelihood that more wars will be classified as being between democratic states. To meet the stability requirement, a state must be democratic for at least three years so that adversaries "could regard it as one governed by democratic principles." (Russett 1993, p. 16)

An interstate war is one that requires large-scale institutionally organized lethal violence that surpasses 1000 battle casualties. This is to differentiate between events that are:

> 1. Lethal but caused by accident. An example is the USS *Vincennes* incident in which the US Navy mistakenly identified an Iranian airliner as a hostile military aircraft. The subsequent shootdown killed 290 passengers; (Johnson 1991, p. 714)
>
> 2. Deliberate actions by local commanders, but not properly authorized by central authorities, as in many border incidents. Any of a number of

demilitarized zone incidents between North and South Korea demonstrates these events. Most notable is the 1976 incident where a US Army Captain was killed with an axe by North Korean border guards for felling a tree;

3. Limited local authorized military actions taken not necessarily intended to progress to large-scale violent conflict but undertaken more as bargaining moves in a crisis, such as military probes intended to demonstrate one's own commitment and to test the resolve of an adversary. An excellent example of this is the 1981 "freedom of navigations" exercises conducted by the US Navy in the Gulf of Sidra. Testing the resolve of Libya's Colonel Khaddafy, the United States conducted these exercises to delegitimize Libya's claim to extended territorial waters. (Sagan 1991, p. 449) Naval aviation assets were used to repel attacks by hostile Libyan jets, thereby demonstrating United States' commitment to open sea navigation; and

4. Deliberate military actions larger than mere probes, but substantially resisted by a usually weaker adversary. The Soviet invasion of Czechoslovakia in 1968, which was met with substantial nonviolent resistance but not force of arms and resulted in less than a score of immediate deaths, is such an example . . . (Russett 1993, p. 12)

The use of rigid criteria allows Russett to disregard certain wars that are cited as exceptions to the democratic peace. In doing so, he is able to remove any ambiguous

reference to democratic war since 1915 and show the strength of his proposition. The wars excluded are shown in Table 1.

Alleged "Democratic" Wars

STATES	*YEAR*
United States and Great Britain	1812
Roman Republic (Papal States) vs. France	1849
American Civil War	1861
Ecuador-Columbia	1863
Franco-Prussian War	1870
Boer War	1899
Spanish-American War	1898
Second Philippine War	1899
World War I, Imperial Germany vs. Western Democracies	1914/17
World War II, Finland vs. Western Democracies	1941
Lebanon vs. Israel	1948
Lebanon vs. Israel	1967

Table 1. Alleged "Democratic" Wars.
Source: Bruce Russett, *Grasping the Democratic Peace* 1993.

Russett also offers significant data based on time period analysis. Realizing that there were only twelve to fifteen democracies meeting his criteria in the nineteenth century, he states that the "significance of the rarity of war between democracies emerges only in the first half of the twentieth century. . . " and even more so since World War II. (Russett 1993, p. 20) He cites that there were maybe 60 democracies by the mid 1980's. Reviewing the dispute behavior of politically relevant interstate dyads (meaning a pair of

states) from 1946 to 1986 he found that there were 29,081 possible international militarized disputes. Of these, 3,878 involved democracies. There were zero instances of war and only 14 cases where force was threatened, used, or displayed. The odds of any dispute requiring force was 1 in 276. These results are shown in Table 2.

Dispute Behavior of Politically Relevant Interstate Dyads, 1946-1986

Highest Level of Dispute	*Both Sides Democratic*	*One or Both Nondemocratic*	*Total Dyads*
No Dispute	3,864	24,503	28,367
Threat of Force	2	39	41
Display of Force	4	116	120
Use of Force	8	513	521
War	0	32	32
Totals	3,878	25,203	29,081

Table 2. Dispute Behavior of Politically Relevant Interstate Dyads, 1946-1986. Source: Bruce Russett, *Grasping the Democratic Peace* 1993, p. 21.

These numbers pose a powerful argument for democratic peace. If true, then the foreign policy aspirations and national strategy of the United States are correct in pursuing the spread of democratic regimes. However, there are dissenting arguments. David Spiro, in his article "The Insignificance of the Liberal Peace" writes that the "zero instance of war" claim is not statistically relevant. He states that wars do not occur frequently. If democracies, a very small portion of all nations, do not war, then it is not a

revealing statistic but simply a confirmation that nations war infrequently and democracies even less. Spiro presents an analysis designed to test the statistical regularity of the Democratic Peace Theory. He wanted to know what better accounts for the fact of the democratic peace; either regime type or random chance. If random chance better explained the absence of war between democracies, it follows that the statistical evidence is not compelling support for the peacefulness of democratic states. He uses the following example to highlight this point:

> As an example of how zero can be statistically insignificant, consider that people win million dollar lotteries in the United States every day of the week, but not one single member of my immediate family has ever won one. Something can happen all of the time, and still the fact that it never happens to a certain group of individuals does not mean anything. No one needs to explore what it is about the nature of my family that prevents winning lotteries, because zero is not a significant result. It is predicted by random chance. (Spiro 1994, p. 50)

Spiro also notes that the Russett study for 1946-1986 only included events labeled as militarized disputes--not interstate war. An international militarized dispute is defined by Russett as "a set of interactions between or among states involving threats to use force, displays of military force, or actual uses of force." (Russett 1993, p. 146) He attacks the intellectual rigor of Russett's statistical analysis by critiquing the definition of key terms as well as the methodological approach that gave such impressive results. The treatment of data and the "pooled series" methodology that Russett used are discounted by Spiro who counters with his own analysis. Spiro's analysis yielded only "2145 total dyads, of which 7 were at war, and 18 were liberal (with no liberal dyads at war). The probability of finding zero liberal dyads at war with these figures is 59 percent, which is not significant." (Spiro 1994, p. 79)

Spiro also challenges Russett on the definitions of democracy and war because of how they impact the universe of cases for study. Excluding civil wars and the international conflicts involving non-state actors may be necessary to maintain delicate theoretical distinctions, but Spiro notes that this "would suggest that the clash of national interests at the systemic level remains our primary tool for understanding international conflict." (Spiro 1994, p. 59) An example is the United States Civil War. This is excluded by many studies of the democratic peace because:

1. The Confederacy was not considered sovereign and therefore did not meet the criteria for a state based on the definition of the terms;
2. The Confederacy was not democratic--there were no elections and they did not meet the stability requirement normally assigned to democracies; and
3. The Confederacy was not wholly democratic--women and slaves could not vote. Yet the Union is often considered democratic in spite of this.

It is interesting to note that by the time of the American Civil War, the culture, perceptions, and practices of democracy that permit cooperation and the non-violent settlement of internal disputes had existed for nearly a century. Yet, these two peoples of one nation, one democracy, waged "one of the bloodiest wars in history" (Spiro 1994, p. 59).

Other criticism of the Democratic Peace Theory comes from authors seeking not to dispute the statistical studies but to show errors in the causal logic. Christopher Layne's article, "Kant or Cant, the Myth of the Democratic Peace," provides a case study analysis pitting the tenets of realism versus Democratic Peace Theory. Postulating that

the democratic peace should produce certain external characteristics of democracies in crisis situations, he selects great power confrontations between democracies to see if the states exhibit traits attributed to cooperative democratic respect of if hard-line power capability considerations aptly explain the outcome. The case studies are interesting because they target not war but "near misses" in which war was averted. He also uses cases involving democratic great powers because these crises "are a good head-to-head test" between Democratic Peace Theory and realism. (Layne 1994, p. 15) Because none of the crises led to war between democracies, the tenets of democratic peace should have brought about the lack of conflict.

The cases reviewed were: 1) The *Trent Affair* of 1861 between the United States and Great Britain; 2) The Venezuela Crisis of 1895-96, again between the United States and Great Britain; 3) The Fashoda Crisis in 1898 between France and Great Britain; and 4) the Ruhr Crisis in 1923 between France and Germany. Layne found that the outcome of these crises are explained better by realist principles than by the tenets of the Democratic Peace Theory. Threats, ultimata, and big-stick diplomacy caused one democracy to accommodate to the other because of concerns over vital national interest, strategic considerations, and a geopolitical outlook "pertaining to a state's position in international politics." (Layne 1994, p. 14)

Layne's best example is the *Trent Affair*. During the American Civil War, the Union Navy intercepted a British ship in Havana and captured Confederate delegates to Britain and France. Boarding the neutral ship in a neutral harbor, the Union Navy incarcerated the delegates and transported them to Boston and later to jail. The British government considered the acts in violation of international law and immediately adopted

a hard-line policy. It called for immediate release of the delegates and an official apology. The British public, reports Layne, "was overcome with war fever" as was the Parliament.

Great Britain backed up its ultimatum by "ostentatious military and naval" preparations as well as economic embargoes of arms and ammunition. Layne 1994, p. 17) A special war committee was convened and British military contingents in North America were bolstered. Layne writes that Britain took these measures to ensure no further encroachment of British national interests. The government also sought to reinforce their nation's resolve, credibility, and reputation by risking war rather than losing prestige. (Layne 1994, p. 18) Because the United States could not risk another war due to their precarious national position, Washington acceded to British demands. Central to their acceptance was the realization that Great Britain was ready to war and displayed that readiness openly.

Layne's analysis showed that democracies do not always show mutual respect. They will employ realist principles and behavior when vital interests are at stake. Also noteworthy was the fact that both British citizens and American citizens preferred war to reconciliation, as reported by Layne. According to Democratic Peace Theory, this bellicosity should not be present. The British government also moved quickly, not displaying the slowness of a democratic system of "checks and balances." Layne writes that the British military preparations included mobilizing sealift to increase British army strength in Canada from 5,000 to over 17,000 and increase naval warships from 25 to 40. (Layne 1994, p. 18) This was completed in approximately one month. Although the British and American governments were democratic, they did not exhibit the characteris-

tics of Democratic Peace Theory. Layne's other case studies are just as compelling. They provide more evidence disconfirming the notion that the norms and culture shared by democratic states will produce peaceful international relations.

3. Synopsis

This assessment of the democratic peace theory specifically critiqued the causal logic and statistical analysis supporting the proposition that democracies do not war with each other. Specifically reviewed were the theory's structural and normative arguments. The purpose of this assessment was to determine the most definitive explanation of the Democratic Peace Theory.

Both variants of the structural argument were dismissed after samples of disconfirming evidence were presented. This placed the burden of proof for the theory on the normative argument. The strength of the normative argument lies in its assertion that the culture, perceptions and practices of democratic states will produce peaceful external relations with other democracies. The normative argument was evaluated by reviewing the statistical evidence as compiled by Bruce Russett in his book *Grasping the Democratic Peace*. Dissenting information was then presented by Christopher Layne and David Spiro that critiqued not only Russett's statistical analysis, but the theory's definitional criteria and causal logic. This critique highlighted weaknesses in Russett's analysis indicating that the evidence supporting the Democratic Peace Theory may still be inconclusive. At stake is whether the theory can be used as a reliable foundation for the prediction of state behavior in international relations. This is significant in light of President Clinton's foreign policy that looks to further "democratization" as a centerpiece of the United States' national security strategy.

F. CONCLUSION

The theory of "Democratic Peace" continues to be a hotly debated item. Among international political scientists, the debate has yet to determine the singular explanation for the causal logic of democratic peace. In the Winter 1995 issue of *International Security*, Bruce Russett defends his research against the counter-arguments of Layne and Spiro. Identifying the three major criticisms of his study, Russett rebuts them all and offers new data analysis that supposedly supports a more robust confirmation of the theory. Not to be outdone both Layne and Spiro counter again in the same issue without giving ground. Spiro makes the charge that many studies, Russett's included, produce biased findings by using selective definitions and methodology. It seems that there is more to the assessment of democratic peace than has been offered.

Both Russett's study and the articles by Layne and Spiro focus sharply on the outcomes of democratic confrontations and the definitional criteria employed for the statistical research. According to Michael Doyle, these types of studies miss a major point as they do not test for the causal mechanism that produces democratic peace. (Doyle 1995, p. 183) Does democracy make a difference in the external behavior of states? If so, are studies that focus on outcomes the only way this can be measured?

The purpose of this chapter was to assess the democratic peace so as to determine the most definitive argument for the inherent peacefulness of democracies. Since the current debate has yet to demonstrate conclusively the strength of the democratic peace or to test for the causal mechanism, one is left with the normative argument as the supposed definitive explanation for external democratic state behavior. As a point of departure for further study, the basis of the normative argument will be used.

The premise for this further study is that manifestations of external democratic behavior should reflect the normative argument's foundation: that the culture, perspectives, and practices of democratic states, which reflect the internal attributes of democratic, peaceful, non-violent conflict resolution, should be visible in a democracy's interactions with other regimes. States interact where they have both the interest and ability to do so. The ability to interact is directly attributed to a state's capability, in terms of power, to affect the outcome of that interaction. Since the *"ultima ratio"* of any power calculus is military power, a review of a state's military doctrine, both theory and practice, should provide insight to the effects of the culture, perspectives, and practices of that state.

The following chapter will establish the link between a state's culture, perspectives, and practices and its military doctrine. It begins by identifying the philosophical values that underpin democratic government and shape democratic behavior. Also contrasted are the differences between a state's internal environment and the larger international environment where a state's military capability determines its ability to act. What follows is an examination of culture as it impacts military power in its ultimate expression: war. Finally, there is a review of the strategy process as it leads to the formulation of doctrine. This permits the case study analysis of democracies in one aspect of military doctrine: air power.

III. BRIDGING THE GAP BETWEEN EXPECTED DEMOCRATIC BEHAVIOR AND AIR POWER DOCTRINE

A. INTRODUCTION

More than most professions the military is forced to depend upon intelligent interpretation of the past for signposts charting the future. Devoid of opportunity, in peace, for self instruction through actual practice of his profession, the soldier makes maximum use of historical record in assuring the readiness of himself and his command to function in an emergency. The facts derived from historical analysis he applies to conditions of the present and the proximate future, thus developing a synthesis of appropriate method, organization, and doctrine. Douglas MacArthur

As a rule, high culture and military power go hand-in-hand. . .
Alfred Thayer Mahan

The purpose of this chapter is to bridge the gap between the expected external behavior of democracies and historical examples of actual democratic behavior in military strategy--specifically air power doctrine. Because internal democratic behavior is the product of liberal values, it is necessary to determine a singular aspect of external behavior that can be examined for evidence supporting the tenets of the Democratic Peace Theory. This thesis will select one aspect of military strategy for evidence of democratic behavior because a state's military capability is often the final arbiter of state to state interaction. The basis for this selection is the understanding that a state's use of its military is not only a political act, as per Clausewitz, but also an expression of culture. Culture is the determining factor in how people conduct themselves and provides a window into how a state, bounded by its culture, conducts itself in peace and the waging of war. The political and cultural aspects of state behavior are linked in one area--the formulation of grand strategy.

Within grand strategy, military strategy determines which specific instruments of national power are to be used. How these instruments are employed is a reflection of military doctrine--defined as the best way to conduct military affairs. Because doctrine is essentially a belief in the best way to accomplish things in the military, a state's culture, perceptions, and practices will influence doctrine as it does in all other affairs of state including its external behavior.

Chapter III will close with the selection of air power theory and doctrine as the basis for examining external democratic behavior. Air power theory and doctrine is chosen because of its unique capability to be either the agent of utter destruction or one of humanitarian concern. The recent war in Iraq, followed by the humanitarian aerial support of Kurdish refugees, is a good example of this dual nature of air power. The chapter begins with a look at the internal characteristics of democratic states followed by a review of war as a cultural expression. Next is an examination of the strategy process and the relationship of strategy to doctrine.

B. INTERNAL CHARACTERISTICS OF DEMOCRATIC STATES

The definitive argument of the Democratic Peace Theory holds that the culture, perceptions, and practices of internal democratic conflict resolution are peaceful. Democracies will externalize this behavior in their exchanges with other democracies, thereby establishing peaceful international relations. This means that democratic international behavior is shaped by the ideas, customs, skills, and arts of a regime's people; what they think about things and how they do things. This occurs because a democratic state is created around the liberal values of individual freedom, equality, human dignity, and brotherhood.

Liberal values are the foundation for a working system of democratic government that believes that an individual has the right to pursue his destiny within the framework of a free society. The free society is essential for the construction of social institutions and the ordering of human relations according to the wants and needs of the people. The primary purpose of the government is to foster an environment that permits a person to realize his/her full potential by protecting and respecting his/her individual rights. The premise for government actions relies on adherence to the principle of *majority rule* without harm to the rights of the minority; acceptance of *natural law*; a belief in *popular sovereignty*; and the primacy of the *rule of law* in settling disputes. A democracy also allows for the renewal of government through the voting process that is noteworthy for its ability to transfer power or make policy decisions without resorting to violence. (Pangle 1990, pp. 24-70)

To establish the expected behavior of democratic states with the focus on a state's culture, perceptions, and practices, one must also determine how states interact internationally. It is equally important to determine if these state characteristics will be present in all facets of that international interaction. It is an important point that the domestic environment of a state is fundamentally different from the international environment. Any domestic system contains an executive division of government that maintains public order; a legislative division that creates the law defining the public order; and a judicial system to provide justice among the various strata of society. The domestic environment of any state is characterized by orderliness and the desire to maintain the order. Order is central to the establishment of justice whereby the various classes or societal groups can coexist peacefully. By contrast, as was stated in Chapter III, a lack of order characterizes

the international system. The basic needs for any state are to maintain state security and to assure state posterity. This creates a need for power so that a state can protect itself from the unwanted advances of other states. Since the use of violence is often the tool of an aggressive state imposing its demands on others, states seek power for protection or to impose their own demands on others as well. Theoretically, states are not restrained by the rule of law or a king's authority, but rather by the power of other states.

States interact internationally where they have the interest and ability to do so. The ability to interact is attributed to a state's capability, in terms of power, to affect the outcome of that interaction. The standard of measurement in any power relationship is the relative size of a state's military capability. With the absence of any universally accepted supranational structure to impose international order, a state's military power becomes the final arbiter of any international encounter.

C. MILITARY POWER AS A CULTURAL EXPRESSION

For democracies, an examination of certain aspects of their military establishment should provide insight into the effects of their culture, perspectives, and practices. If democracies are peaceful regimes because of their internal nonviolent conflict resolution capability, democratic peacefulness should be reflected in the use and development of military power. If democracies claim to value the rights of individuals and their private property, then their use of military power should also reflect that claim.

From Clausewitz one learns that "war is therefore a continuation of policy by other means. It is not merely a political act but a real political instrument. . ." (Clausewitz 1962, p. 83) Clausewitz identifies war as a political, and therefore, social act. Politics is the hallmark of human activity that defines the social order between people and

their group associations. As a social and political act, war and the instruments of war are subject to the same influences of culture, perspectives, and practices that characterize a state's internal behavior. John Keegan, in his book *A History of Warfare*, wrote:

> war embraces much more than politics, it is always an expression of culture, often a determinant of cultural forms, in some societies the culture itself. (Keegan 1993, p. 12)

Keegan's analyses present a cultural imprint of warfare. In Chapters 2 and 3 of his book, he makes the point that much of warfare has its roots in the culture, perceptions and practices of the people that fought. His examples include the primitive societies of the Yanomamo, Maring, Maori, and Aztec tribes; and the nomadic tribal warriors of Eurasia.

1. Primitive Warrior Societies

Soldiers are the product of modern states marked by an officer class and armies. This is not so in primitive civilizations where the modern structures of the government, military and society do not exist. In reviewing primitive societies, one finds that warriors, deemed so at birth by sex and culture, were different. They fought for reasons outside of security and territorial claims as modern soldiers do. One society, the Yanomamo, fought for the exchange of women in which death through attrition was unwarranted. Described as fierce (*waitei*), their goal in fighting was to secure women for birthing males. Infanticide of female offspring was common in this society's pursuit of male children. Death in battle was also common but unnecessary and unwanted as the perpetuation of the Yanomamo was paramount. The reward for battle is not the familiar treasure or territory but is usually to prevent the taking of women or to establish the right to acquire women on "favorable terms." (Keegan 1993, p. 97)

The Maring tribes of New Guinea were similar. Although they fought, the use of more modern weapons, such as the bow, were to extend the range of the fighting and allow few, if any, deaths. There were no claims for territory and each battle had distinct phases from shouting insults to a rout of the enemy. The Maring showed a reluctance for decisive victory since routing the enemy rarely occurred. Although they had weapons which are deadly at close quarters, the Maring did not employ them that way.

The Maoris and Aztecs had a decidedly different outlook for battle. In Maori society, the insult was considered the worst offense. All killing was ritualistic. When the Maori battled, it was for revenge and a feast of the enemy warriors. Their weapons reflected this purpose. They were made only to inflict injury and not death. A captured warrior was killed in ritual in a brutal fashion with his head being impaled on a pole on the village outskirt so that anyone could insult him, even in death. The Aztec civilization was especially brutal in the same manner as the Maori. They fought pitched battles at close range with the purpose of capture only. Part of their culture demanded males to fight and the rewards were not material. The captured enemy was also killed brutally as part of a ritual ceremony in which his captor silently watched. For the Aztecs, their ceremony served religious purposes. Keegan writes that they:

> believed that they were the heirs of the legendary founders of the civilization of the central Mexican Valley, the Toltecs, and that it was their calling to revive the splendors of the Toltec empire. They achieved that object, but they had been led to it, and could only be sustained in it, by their gods, who demanded sacrifices, of everything and anything of value. . . (Keegan 1993, p. 113)

To further his theory, Keegan presents another cultural imprint of warfare. The nomadic warriors of the Eurasian continent were responsible for imparting new lessons of warfare

which the early European and Asian states incorporated. This incorporation saw the advent of professional armies and their subjugation to developed states.

2. The Nomadic Warriors

In Chapter 3, titled *Flesh*, Keegan chronicles the development of nomadic tribes in association with the concurrent development of the domesticated horse. First harnessing the horse to a chariot, man later abandoned the cart in favor of the animal as horses became bigger and stronger. This most likely occurred because of the successful breeding of horses able to bear the weight of a man riding forward on the horse's shoulders. Man also began the schooling of horses for specific purposes, one of which was to provide a platform for the warriors. At first applicable to charioteers, then to horse-borne riders, these warriors understood the shock value of mounted cavalry massed against the stationary enemy troops. As Keegan writes "in the case of such an attack by an enemy against which it could not maneuver out of trouble, the stricken host had only two choices: to break and run or to surrender." (Keegan 1993, p. 166)

The nomadic riding warrior came from a forbidding plain named the steppe. The steppe is a plutonian landscape of the central Asian continent which gave birth to the nomadic tribes. Nomads were ruthless warriors that fought offensively and aggressively. Their cultural ethos demanded the continuation of their nomadic lifestyle. They wanted the spoils of a settled life but the adventures of a traveled people. Keegan offers three examples of these mighty people: the Huns, the Arabs, and the Mongols.

Attila's Huns can best be described as a people that learned a simple principle: war paid. They are described as:

> physically tough, logistically mobile, culturally accustomed to shedding blood, ethically untroubled by religious prohibitions against taking the lives or limiting the freedom of those outside the tribe. (Keegan 1993, p. 183)

The Huns wanted the spoils of war with no restrictions. They warred for the sake of war and its bounty. Living on the periphery of the Roman Empire, they invaded Greece, ancient Gaul, and Italy. Attila's warriors were so terrifying that he earned the sobriquet "scourge of God." Unable to determine successors after Attila's sons, the Hun empire collapsed but their expression of ruthless war lived on.

The Arabs possessed a unique cultural purpose in fighting. Under the leadership of Muhammad, the Arabs fused war with religious ideology. Islam became a creed and culture of conflict. The two houses of Islam, Dar el-Islam (House of Submission) and Dar el-Harb (House of War) worked to submit the entire world under the Islamic religion. Once the Dar el-Harb had run its course, the world would all be brothers. This would complete Islam's destiny which saw no human barriers of race or language. Within this doctrine, the usual trappings of modern warfare, treasure or territory, were notably absent. Islam was the force of an idea detached from family, race, geography, or material reward.

The most successful of the nomadic tribes were the Mongols of Ghengis Khan. At the height of their success, they conquered Northern China, Korea, Tibet, Central Asia, parts of Persia, Turkey, and Russia. They also campaigned in Poland, Hungary, Prussia and Bohemia. Mongol customs and prejudices were forced on the vanquished. Ghengis Khan extended vengeance on a continental scale using terror as his ultimate weapon. There was an insistence on perpetuating the Mongol culture on to the conquered. Ghengis is purported to have believed that his people were chosen by God and

that his mission was divine. Any resistance to these ideals was ruthlessly destroyed. The Mongols had a strict code of law and a dependence on performance for command. All booty was collectively shared and warriors were loathe to leave comrades in battle. Discipline was the hallmark of the Mongol horde and they were unaffected by enlightened Christian or Islamic religious mores. As Keegan wrote, "Their minds as well as their weapons were agents of terror, and the terror they spread remains a memory to this day." (Keegan 1993, p. 207) The warriors performed their duties detached from emotion and were deliberate in their atrocity. Without any hint of ceremony or ritual, the Mongols won quickly, completely and unheroically.

In Keegan's analysis, one sees the imprint of culture in the manner that these people fought. One must not forget that although Keegan establishes the framework for *how* a state engages in war, Clausewitz still provides the logic underpinning *why*. In a state-centric world, politics still decides on the use of military power. These two elements, the *how* and *why*, are joined in only one place: the formulation of grand strategy. Within a grand strategy, the relationship between the means and ends of political decisions are readily discernible. This is because the predominance of the political point of view is only qualified by the military means at hand. A politician can determine to use military power as the means to achieve a political goal, however, the military's capability to accomplish that goal will necessarily shape the politician's ability to choose that option. In this reciprocal relationship, the superior position belongs to the politician but his choices cannot be framed without proper military guidance on the expected outcome of military action weighed against military capability. For this reason, an examination of the strategy process is required that reveals the interaction of its ends and means.

D. THE STRATEGY PROCESS[3]

In any regime, the use of military power is tied to the national security strategy or grand strategy. The grand strategy is the process that ties political ends to the ways and means of obtaining those ends. Before the advent of the modern era, it was possible for a king to formulate all aspects of a grand strategy. With the complexity of interstate relationships, technology, and the domestic bureaucracies that support state policies, however, the ability of one person to fully understand all aspects of any issue became unattainable. It is better to view the formulation of strategy as an integrated decision-making process made by more than one person or agency. This includes the chief executive of any state who possesses the ultimate authority for any and all decisions made.

Formulation of strategy has become a sequential process that defines and delineates all aspects of a strategy at each level of authority. Dennis Drew and Donald Snow have listed the necessary steps that define this process. They are:

1. Determine National Security Objectives;
2. Formulating Grand Strategy;
3. Developing Military Strategy;
4. Designing Operational Strategy; and
5. Formulating Battlefield Strategy Tactics.

---

[3]This section is largely based on the following: *Making Strategy: An Introduction to National Security Processes and Problems*, (Chapter 2), Colonel Dennis M. Drew and Dr. Donald M. Snow, Air Command and Staff College Correspondence Lesson Book, Vol. 2, (Maxwell AFB: Air University Press, 1988), pp. 6-61 to 6-66.

Determining the National Security Objectives is the single most important step in the strategy process. If these goals are poorly defined or ambiguous to a certain degree, it will be difficult for the various levels of authority in a state to make well integrated plans and policies in support of national objectives. The national objectives must also be supported by popular consensus. If not, especially in a democracy, then it will be difficult to sustain any objective that requires the long term commitment of the nation. A good example of this is the Vietnam War. The war was well defined by foreign policy directives as a reasonable extension of President Kennedy's Flexible Response policy but inadequately supported by the American people. (Krepinevich 1986, p. 28) Because large portions of the population opposed the war, the United States was unable to continue its support for the South Vietnamese government.

The Formulation Of Grand Strategy determines the national instruments necessary to achieve national objectives. Paul Kennedy identifies this step as one that "relate[s] ends and means" because it requires a coordination between the development and use of policy instruments. (Kennedy 1991, p. 2) Grand strategy is the highest level of connectivity and interface between the non-military vehicles of power and the military establishment. At this level the selection of national instruments of power as well as the assignment of roles and missions occurs. Drew and Snow highlight its importance for three reasons: grand strategy is the focal point for the utility of military force in international relations; any type of military relations requires not only military mobilization but also the mobilization of non-military national assets; and the nature of war has changed in this century where a state must use a "package" approach to wars in the developing regions of the world. This requires the integration of "political, psychological, economic,

and military actions" calculated to restore order and defeat potential adversaries. (Drew and Snow 1988, p. 63) This integrated "package" approach was used in Haiti where the problems of that society were so vast that soldiers were used in non-traditional roles.

The Development of Military Strategy requires the formulation of specified strategies for the use of selected instruments of national power. Military strategy is defined as "the art and science of coordinating the development, deployment, and employment of military forces to achieve national security objectives." (Drew and Snow 1988, p. 63) In regard to the military instrument, this strategy does not solely deal with a wartime environment because of the extensive use of military forces for operations other than war. What is important to learn is that a state's military strategy, and innovations to the doctrine that support the strategy, can affect state security. An example is the French Maginot Line. The Maginot fortifications were built as a response to possible future German resurgence and a change of military thought from the "cult of the offensive." French experience in World War I caused a shift in military strategy that promoted defensive warfare. The effectiveness of modern firepower, with its accuracy and devastation, was not lost on the French Army. Offensive strategies were perceived as too costly in resources, manpower, and material. (Porch 1991, p. 136) This resulted in a grand strategy that sought protection in alliances and a military strategy that purposely sought the prevention of defeat rather than the pursuit of victory. French strategy was based on the assumption that the next war would once again evolve at a slow pace and that the defensive posture of their military strategy would protect the territorial integrity of the state. (Posen 1984, p. 119) Unfortunately for France, German military doctrine and strategic thought reintroduced the viability of maneuver. Using mobile armored divi-

sions, the Maginot Line was rendered obsolete by the application of firepower, force, and mass at critical battlefield junctures miles away from the fortifications. French mistakes in the formulation of grand strategy and military strategy, coupled with their inability to innovate tactically, imperiled state security. This led to the collapse of France in June of 1940 followed by four years of occupation by the German Army. (Johnson 1991, p. 369)

Operational Strategy is differentiated from military strategy in that it acts to create the force structure, in both weapons and personnel, needed to execute the military strategy. An excellent example of operational strategy can be seen in the operational campaigns of a military service. These campaigns are noteworthy because they involved the creation of competent force structure and the development of weapons systems for specific national objectives. The battle campaigns of both the United States' Navy, under the command of Admiral Nimitz, and the Army, commanded by General MacArthur in the Pacific theater during World War II, illustrate this perfectly. Both services and their commanders executed a strategy in fulfillment of national objectives that required the recruitment and training of personnel suitable for the tasking of each service; and the development and deployment of new weapons systems for these personnel to use in battle. (Weigley 1973, p. 285)

Drew and Snow identify the last step, *Formulating Battlefield Strategy Tactics*, as the art and science of employing forces in the battle area to accomplish national objectives. It is the lowest level of strategy that directly determines actions taken on the battlefield and is very important. This often spells the success or defeat of national policies regardless of how well formulated the strategy process is at any higher level. A good example of successful battlefield strategy tactics is the German *Blitzkrieg*, or

lighting war of World War II. Using new combinations of concentrated armor followed by infantry divisions in their battlefield assaults, the *Wehrmacht* stunned the world by defeating Poland in five weeks, and France in six. (Johnson 1991, p. 369) This level of the strategy process deals with what Drew and Snow labeled "doing the job right" rather than "doing the right job," the latter more aptly describing the higher levels of strategy.

While the strategy process described by Drew and Snow appears to be theoretically linear, it must be noted that this process is always influenced by external factors. The process is also subject to feedback from the system whereby strategies and tactics are changed to ensure the accomplishment of national objectives. This indicates that the strategy process is dynamic and requires a strategist to remain flexible since the intangible influences are largely uncontrollable. Examples of intangible influences include Clausewitz's trio of fog, friction, and chance. They are defined as:

1. The fog of war--created by incomplete and inaccurate information;
2. Friction in war--situations which arise that tend to impede an army's ability to accomplish its stated objectives; and
3. Chance--the element of happenstance that allows the forces of one military force to possess an unforeseen advantage without undue effort.

Other factors influencing the strategy process include the nature of domestic and international politics, economics, technology, the physical environment, geography, culture/society, leadership, and military doctrine. Figure 2, diagrams the strategy process.

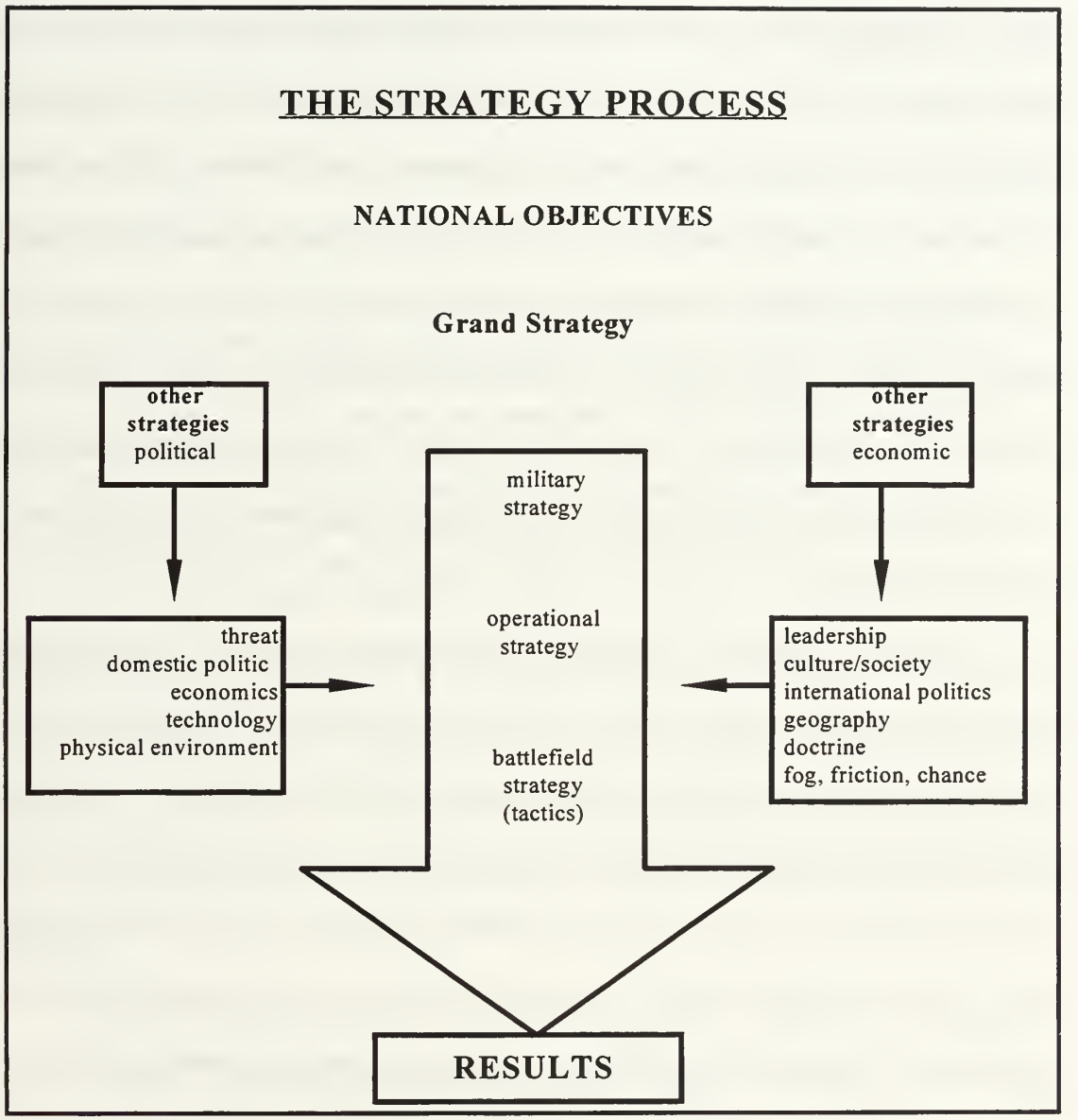

Figure 2. The Strategy Process.
Source: Colonel Dennis M. Drew and Dr. Donald M. Snow, *Making Strategy: An Introduction to National Security Processes and Problems*, Chapter 2, 1988.

E. THE DOCTRINE-STRATEGY RELATIONSHIP

Successful national strategy depends on well defined military doctrine. Although strategy is influenced at all levels of authority, doctrine occupies a significant role in the process because it is derived from a historical evaluation of events. As a standard of measurement for the effects of the normative argument for the Democratic Peace Theory, doctrine provides insight to the effects of culture, perceptions, and practices because it is a product of past experiences, customs, and beliefs of a state. Just as a state's culture changes over time, military doctrine also matures and provides an evolving standard from state international interaction. From military doctrine, one can determine if a state uses its military instrument with either humanitarian regard or ignorance of the consequences of military operations.

In order to determine the influences of the normative argument of the Democratic Peace Theory on state external behavior, this thesis proposes a look at a specific aspect of the military doctrine of democratic states versus authoritarian regimes. According to Drew and Snow, doctrine provides the knowledge base for making strategy decisions. They define military doctrine as "what we believe about the best way to conduct military affairs." (Drew and Snow 198, p. 73) Since doctrine is a belief, changes in doctrine are commonplace depending upon the changing internal and external environments of states. As a point of reference for answering the "how" in regard to the implementation of national strategy, doctrine must remain flexible to keep pace with political, economic, and technological changes.

The Air Command and Staff College at Air University, Maxwell Air Force Base, writes that the relationship between doctrine and strategy represents a dynamic process

where inputs to the process require the "reformulation and alteration" of strategy and doctrine. (ACSC Staff 1995, p. 79) These inputs are national security objectives, politics, economics, technological capability, threat perception, and theory/history. All of these inputs influence both doctrine and strategy. Doctrine is influenced at the basic, operational, and tactical levels of warfare which define the best way to accomplish national objectives from the macro to the micro levels of authority:

> Basic doctrine states the most fundamental and enduring beliefs that guide the proper use of military forces. Basic doctrine can explain in the broadest terms how military force may be used to gain national objectives. Operational doctrine applies the principles of basic doctrine to military actions by describing the proper use of military forces in the context of distinct objectives, force capabilities, broad mission areas, and operational environments. Tactical doctrine applies basic and operational doctrine to military actions by describing the proper use of specific weapons systems to accomplish detailed objectives. (ACSC Staff 1995, p. 81)

Strategy provides a workable format for the implementation of doctrine. This entails the creation of sufficient force structure, training, and equipment necessary to fulfill the national objectives. A state must also develop sufficient support structures and technologies. This permits a military force to be sustained and effective in its pursuit of national objectives.

The final step in the process is results, or feedback. This tells the strategist how well the strategy and doctrine combined to achieve national objectives. These results form the historical experience from which future doctrine is developed and strategies are changed to accommodate changes in the operating environment. Dennis Drew writes that the linkage between strategy and doctrine is not linear:

> [W]e can see that doctrine often has been a significant influence on strategy, and that is as it should be. We should also remember that the

> linkage between strategy and doctrine . . . is circular. The results of applied strategy--whether they be the results of actual combat, or the results of exercises, or even the results of computer exercises, form the experience base, the history, upon which doctrine is based. So doctrine influences strategy and the results of applied strategy form the basis of doctrine. And that also is as it should be. (Drew 1989, p. 91)

Figure 3 below diagrams the circular relationship between doctrine and strategy.

The Doctrine-Strategy Relationship Model

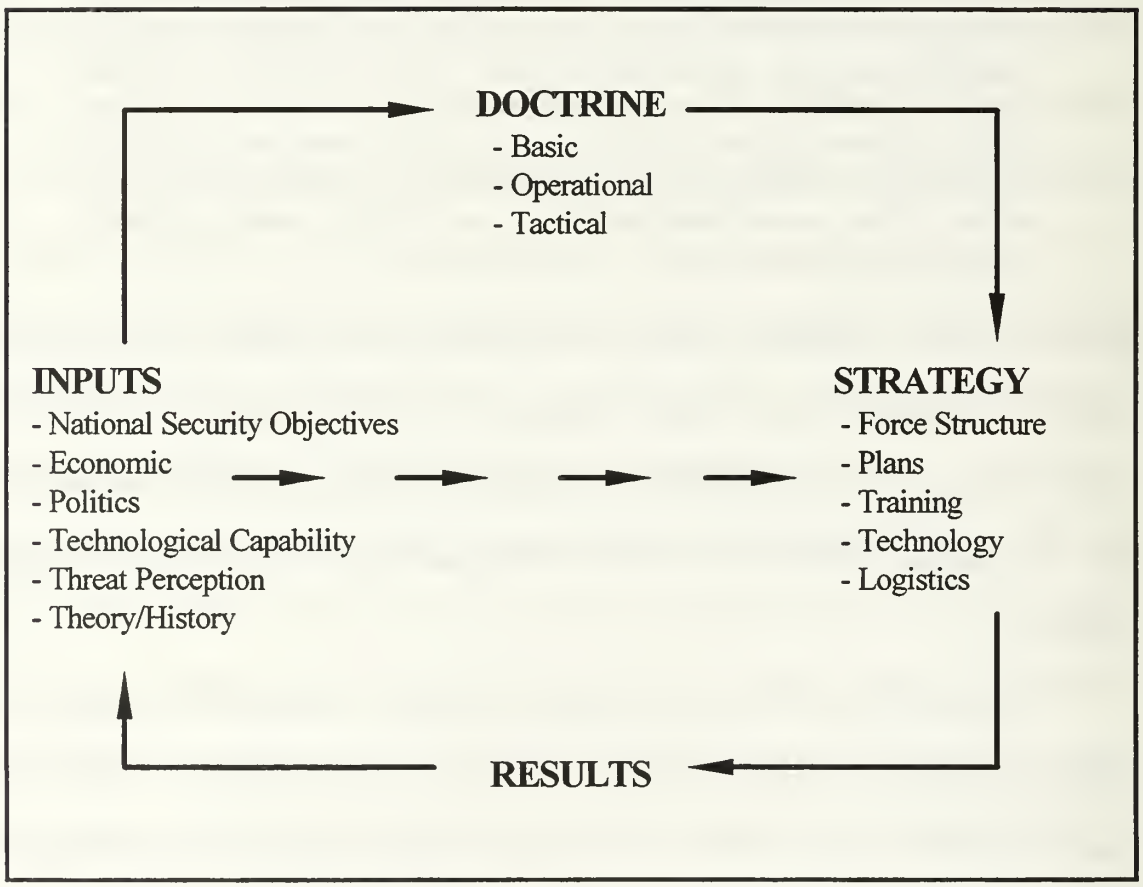

Figure 3. The Doctrine-Strategy Relationship Model
Source: Air Command and Staff College, Air University Staff, The Doctrine-Strategy Relationship Model, Vol. 2, Reading 9, 1995.

If a doctrine did not meet desired objectives, this failure will cause a change in the creation of future doctrine. If the doctrine attained desired objectives, its success will reinforce the continued development of doctrine based on favorable experience. Ultimately, either the success or failure of doctrine will influence national strategy.

F. SYNOPSIS

The purpose of this chapter was to bridge the gap between the definitive argument explaining the Democratic Peace Theory and a manifestation of expected external behavior by regime type. To this end, the following has been established:

1. Democracies possess internal characteristics that allow for peaceful conflict resolution. They are the product of the liberal values that form the foundation of democratic government;
2. The Democratic Peace Theory holds that these characteristics manifest themselves externally in their relationships with other democratic states. What produces peace between democracies are the shared culture, perceptions, and practices of democratic states;
3. States interact internationally when they have the interest and ability to do so. These interactions are based on a state's ability to project their power either militarily, economically, or in the realm of opinion;
4. In order to find examples of external behavior, a focus on an aspect of the national strategy should provide sufficient evidence of democratic state behavior. This evidence is found in a state's military strategy manifested in the conduct of military operations. In military operations, a state's

actions are based upon both the political and cultural foundations of the state. In supporting the national or grand strategy, both the "how" and "why" of state policy are joined so that a government can not only "do the right thing" but also "do things right"; and

5. In order to "do things right" a state's military doctrine is formulated to provide the basis for action--the conduct of military affairs. Doctrine provides the knowledge base for making strategy decisions and is influenced by the same factor as is strategy. Therefore, military doctrine will provide a window into democratic state behavior.

The specific aspect of military doctrine for this study will be Air Power doctrine and theory. This is chosen because Air Power possesses the capacity to use air assets in accordance with the Democratic Peace Theory or in total opposition to the same dependent upon the aims of military strategy. This is the same strategy developed to support the national grand strategy and is reflective of the culture, perspectives, and practices of a state according to regime type.

An example of using air power in accordance with the tenets of the theory is the Berlin Airlift. In the summer of 1948, the Soviet Union blockaded the city of Berlin. Hoping to starve West Berlin into joining the Soviet sphere of influence, the Soviet Union cut off all electricity and denied allied forces entry to the city. The United States flew 60 B-29 "atomic" bombers to Berlin in an attempt to intimidate the Soviets into reopening access to Berlin. When that failed to intimidate the Soviet Union into lifting the blockade, the United States mounted a:

> technical demonstration of US air-power and to supply Berlin by plane. It worked: the airlift was flying in 4,500 tons a day by December, and by spring 8,000 tons a day, as much as had been carried by road and rail when the cut-off came. (Johnson 1983, p. 442)

The Berlin airlift, along with the Marshall Plan for Europe, established the United States' commitment to global humanitarian crises that continues to this day. It is a reflection of the United State's culture, perspectives, and practices that seeks to avoid war if possible and using its combatant force to provide alternative solutions to difficult problems.

An example of using air power in opposition to the theory is the United States bombing of Vietnam. Invoking a strategy of annihilation, the United States developed military operations whose purpose was the destruction of North Vietnam's and the Viet Cong's armed forces as well as their will to fight. To this end, they increased troop strength to over 500,00 and conducted bombing raids in North and South Vietnam, Cambodia, and Laos. Operations ROLLING THUNDER, LINEBACKER I and II dropped more than eight million tons of bombs--more than dropped on Germany in World War II. Department of Defense estimates report that the United States:

> destroyed or put out of commission 77 percent of North Vietnam's ammunition depots and 65 percent of their petroleum storage facilities. US air forces dropped or seriously damaged 55 percent of their major bridges and destroyed an estimated 12,500 vessels, nearly 10,000 vehicles, and almost 2,000 rail cars along with a handful of locomotives in strikes and aerial reconnaissance missions along their lines of communications. Our air strikes forced the mobilization of over half a million men and women to repair the transportation network and disperse their supply caches. Another 150,000 people were used to man antiaircraft guns, fire automatic weapons at attacking aircraft, and run bomb shelters. (Lewy 1978, p. 390).

In this instance, the air bombing doctrine of the United States had stagnated because it still operated with the underlying assumptions of World War II success--that its opponent

in any war would be a modern, industrialized nation. The key to victory would be found in military operations that emphasized the deterrent and war fighting decisiveness of strategic bombardment. In the age of limited war in developing states, this doctrine produced a long, disastrous war resulting in frustration, wasted blood and treasure, and a highly destructive and ineffective bombing campaign that destroyed more than just enemy forces. (Drew and Snow 1988, p. 75) World public opinion felt that the United States was waging a technological war against a country that was hopelessly primitive. The Vietnamese were thought to be peaceful and peace loving and could not possibly win this war against a super power. In fact, superior "American firepower seemed likely to annihilate all too well the country that they came to save. (Weigley 1973, p. 467).

G. CONCLUSION

This chapter established the link between expected democratic state behavior in the development of air power doctrine. This was accomplished in order to determine if historical examples of external state behavior support the tenets of the Democratic Peace Theory. Air power doctrine was selected for case study analysis because it is founded on a state's belief in the proper manner in which to conduct military affairs and is also subject to the influences of a state's culture, perceptions, and practices. Since the influences form the definitive argument for the Democratic Peace Theory, it is possible to determine if they tend to formulate a doctrine that is humanitarian in nature or one that is more sanguinary.

The following chapter establishes the foundation for analysis of air power theory and doctrine. Chapter IV identifies the significant factors that molded the development of air power during the inter-war period and also evaluates the recurrent themes of air

doctrine. Each country developing air power made choices concerning the integration and employment of air assets into military and national strategies. Success in the air war of World War II hinged upon making the correct choices. This was not easy because the countries that developed air power did so based upon speculation. They speculated that the destructive advantages of aircraft would bring swift, decisive victory to the next war. To this end, they entered World War II knowledgeable of the potential devastation posed by aerial bombing, and therefore, steadfastly refused to negotiate away the one asset that might be the margin of victory.

IV. FOUNDATION FOR ANALYSIS

A. INTRODUCTION

> *Do not believe that tomorrow the enemy will make any distinction between military forces and the civilian population. He will use his most powerful and terrifying means, such as poison gas and other things, against the civilian population, even though in peacetime he may have professed the best intentions and subscribed to the strictest limitation of them. Squadrons of airplanes will be sent to destroy the principal cities. The future war, of which we now have only a vague idea, will be frightful. Anthony Fokker* (Douhet 1928, p. 189)

Chapter IV will provide the framework for case study analysis evaluating democratic states with regard to their expected behavior when measured against the tenets of the Democratic Peace Theory. This chapter will be organized by defining key terms; specifying significant factors affecting the development of air power; providing background information identifying recurrent themes in the development of air theory; and finally, discussing international attempts in the decade following World War I to limit the inhumane character of aerial bombardment. The purpose of this analysis is to demonstrate that the development of air power was different in each country. Four recurrent themes shaped the debate as to what principles established the basis for applying air power. Also noteworthy was the international awareness of the inherent destructiveness of the air war instrument. Using this foundation, this thesis will determine if democratic states developed air power doctrine in a way that tends to support the tenets of the Democratic Peace Theory--that a democracy's culture, perceptions, and practices tend to make them peaceful international actors.

B. GLOSSARY OF TERMS

The following terms are necessary to understanding the subsequent case study analysis. Note that the states used for this study meet the criteria for democracy as explained in Bruce Russett's book *Grasping the Democratic Peace*. All of the states established its government through contested elections with a substantial amount of citizens possessing the right to vote. The chief executives of these states were either popularly elected to office or responsible to a popularly elected legislature. Each of the states have been democratic for at least three years.

Terms:

- Air Interdiction: the process of using air forces to delay, disrupt, divert or destroy an enemy's potential before it can be brought to bear effectively against friendly forces.
- Air power theory: propositions concerning the best way in which a state uses air forces in the conduct of war.
- Air power doctrine: a state's belief about the best manner in which to conduct the use of air forces. Doctrine puts theory into action. It is the written implementation of the best way to conduct air operations.
- Air superiority: having sufficient control of the air environment to make air attacks on an enemy and be free from the danger of serious enemy incursions. Opposition exists but is not substantial.
- Air supremacy: the ability to operate air forces anywhere, anytime, with no opposition from enemy air forces. No opposition exists.

- Close Air Support: application of aerospace assets in support of the land component commander's objectives providing direct and immediate support to friendly forces in contact with the enemy.

- Strategic bombing: the use of air forces to attack political and industrial targets deep in the enemy's territory with the goal of ending a conflict quickly by destroying the enemy's ability to wage war or by convincing him to desist without having to engage his military forces due to a weakening in his national morale.

- Targeting: the process by which a state selects, prioritizes, and designates elements of an opposing state for destruction during the conduct of military operations.

C. HISTORICAL OVERVIEW

1. Factors Affecting the Development Of Air Power

The development of air power theory and doctrine has its roots in the shared experiences of states conducting aerial warfare in World War I. As a component of military strategy, it is relatively new thereby making the inter-war development of the air arm and the subsequent application of air assets in World War II an exercise in trial and error. Doctrine at the beginning of World War II was not based on the prognosis of future air capability but more on what aircraft were capable of during World War I. This occurred because developments in military aviation during the 1920s and early 30s stagnated. As aviation science progressed to produce the powerful air weapons of the second world war, doctrine did not progress along with it. Military strategists incorporat-

ed air power assets into grand strategy not as an independent service air arm but only as adjuncts to existing naval and army strategies. Some strategists saw other roles for aerial weapons but all states agreed that the air operations of the future would have a significant impact on the outcome of any conflict.

Air historian Richard J. Overy identified five factors that affected the development of air power theory and doctrine. Each factor has different considerations to each state based upon its own unique circumstances and history. They are:

1. Strategic Conception;
2. Economic Capability;
3. Scientific and technical mobilization;
4. Political and social reception; and
5. Combat effectiveness. (Overy 1992, p. 10)

A state's strategic conception of the potential for the air weapon was the most defining factor for its use. A state derived its strategic conception as part of an integrated component of its military and national strategy. As shown in Chapter III, this integration naturally affected doctrine which shaped not only the use of military aircraft, but also force structure and organization. Development of the strategic concept was based upon common experience and well known theories of air power such as those proposed by Giulio Douhet and Billy Mitchell.

Maritime states, such as Japan, Great Britain, and the United States, developed strategic conceptions that were much different from continental powers. They necessarily

incorporated doctrinal differences which were strategically determined. Japan, for example, developed a strong naval air arm requiring a reorganization of attack fleet priorities. Limited by treaty to the number and size of its capital vessels (battleships), they reconstituted their battle line formations for their attack on Pearl Harbor. The Japanese Imperial Navy exchanged the normal battleship attack fleet supported by a single carrier into one where the capital ships were the aircraft carriers. Japan also used newly developed superior weapons and assets that included new torpedoes, torpedo aircraft, and the world's most highly trained pilots. Their pilot training program was by far the best in the world. Newly assigned fleet pilots accumulated approximately 700 flight hours of training as compared to the United States' aviation cadet program which graduated pilots with 305 flight hours. (Weigley 1973, p. 249)

Economic capability affected air power development by constraining strategy and doctrine. The possibility of using air assets as part of an integrated military strategy hinged on the industrial base of a state to produce the necessary weaponry to wage that type of war. Aircraft are modern, complex machines that are costly to develop, produce, maintain, and employ. It is not uncommon to expend up to 40 or 50 percent of a country's total war resources on air assets alone. (Overy 1992, p. 12) A state wanting to develop air power required both the industrial depth and the political certitude to expend large amounts of national resources into a war instrument that is attritional by nature. The alarming frequency of aircraft mishaps or maintenance problems that keep aircraft grounded can bankrupt a fledging air force's operational budget and render it useless.

Science and technology naturally expanded the possibility of an air war. Again, without a rigorous, broad-based, and well established aviation research capability, no

state could enter an air war with any success. Success was often attained through extensive experimentation and innovation and the military had to establish a relationship with the scientists and engineers that produced advances in aviation technology. This was no easy task considering the contrast of the military's traditional disciplinarian outlook with a scientist's requirement for exceeding conventional boundaries of thought and practice.

In any state, the political and social structures that govern its internal activity naturally constrain military development. The development of air power must have the support of political leadership willing to pay for it with tax dollars. This coupled with the rivalries and prejudices of the naval and army components can effectively retard or suspend the growth of any air service. In the United States, military aviation was subject to frequent evaluation of its development not only by the other armed services but by Congress as well. With the public attention focused on the court martial of General Billy Mitchell, the entire country became privy to the arguments for and against the development of air policy. The event also highlighted the United States' neglected military policy.

General Mitchell's court martial was prompted by the loss of the US Navy dirigible *Shenandoah* in stormy weather over the Ohio River Valley in September, 1925. Mitchell publicly excoriated US political and military leadership by claiming that the loss of the *Shenandoah* was due to "incompetency, criminal negligence, and almost treasonable administration of the national defense . . ." (Futrell 1989, p. 46) This came on the heels of Mitchell's unfavorable testimony to the Morrow Board, a committee convened by President Coolidge concerning the future of United States' military aviation development. General Mitchell asserted that the:

> United States was strategically vulnerable to an aircraft carrier invasion force that could be mounted by Great Britain in the Atlantic and by Japan in the Pacific. The answer to this problem was an army to hold the land, a navy with a good force of submarines to patrol the seas, and, above all, an air force to protect the seaboard and insular possessions of the United States. (Futrell 1989, p. 46)

Because Mitchell's publicized positions threatened the status quo of both the Army and Navy, there was considerable opposition to the creation of an independent air force. The war department General Staff went so far as to assert that the principle of air power was unsound from a national defense viewpoint as well as from US Army considerations on how to conduct war. Despite this opposition, Mitchell did get the attention needed for the development of air power. The Morrow Board recommended the creation of a separate Army Air Corps, a special cabinet position specifically for military aviation, and ten million dollars per year for both the Army and Navy to procure new flying equipment. (Futrell 1989, pp. 47-49)

The Morrow Board was one of many successive treaties and congressional inquires that pushed and pulled the development of air power in the 1920s and 30s. Others included the Air Corps Act of 1922, the Washington Disarmament Conference of 1922, the 1924 Lampert Board, the Locarno agreements of 1925, and the United States' Baker Board in 1934. Richard J. Overy writes:

> Any understanding of the development of organized air power cannot ignore the political framework within which it operated. Air power raised questions about modernity in warfare in obtrusive ways: aircraft, like tanks, forced the pace of technical modernization in the armed forces, and it should not surprise us that this was an uneven and politically-charged process. The nature of the new weapons also demanded the social modernization of the forces themselves; cavalry officers in Germany found themselves in charge of air fleets; air force officers had to accept close cooperation with industry and civilian officials, and all air force personnel

> had to have a higher level of technical knowledge and training than did their counterparts in other services. This produced tensions of a different kind, for it challenged the monopoly of military skills enjoyed by the army and navy, shifted the social structure of the forces (it is significant that most of the air force stayed loyal to the Spanish Republic in 1936), and speeded up the professionalisation of the military establishment. (Overy 1992, p. 15)

Combat effectiveness affected the development of air power because of the variety of obstacles inherent in operating any air force of any size. Combat effectiveness in the air war measures success and is unique because it demands commanders that are well versed in not only the fighting aspect of the war, but the managerial aspect as well. All units must be competent in the areas of command and control, organizational structure, and logistics. Air forces are unique because they are also dependent upon the development of highly skilled personnel. The training and supply of air crew and aircraft maintenance personnel are critical because of the expensiveness of training pilots and the use of high technology equipment. Both air crew and aircraft experience high rates of attrition in all areas of mission accomplishment. Replacements take long periods of time to reach the competency levels of those that are lost. Air forces with sufficient manpower reserves, effective training programs, and currency training for air crew and maintenance personnel, could sustain an air war and would most likely win it.

2. Recurrent Themes in the Development of Air Power Theory

By 1939, air power theory had not progressed much further than what was established at the end of World War I. There were, however, constant themes of development within a state's strategy about the direction and future use of air power. Richard J. Overy, in his book *The Air War 1939-45*, identified these themes:

a. Aircraft and sea power;

b. Armies and air power;

c. Strategic bombardment; and

d. Aerial defense. (Overy 1980, p. 6)

Much of the debate during the inter-years focused on the proper roles and missions of air power with regard to a state's security and the international environment that shaped it. Air power was integrated into the military strategy in a way that each state thought best suited for its overall use in the grand strategy. Incorporation of air power doctrine by states was conditioned on the factors listed in Part 1 of this section and were unique to each country. Even so, these recurrent themes shaped the debate on the proper use and development of air assets. For example, maritime powers necessarily viewed the employment of air power differently than a continental power with little or no borders contiguous to the ocean. It explains much about a country like the United States that developed naval aviation separately but concurrently with an expanding Army Air Corps. In contrast with Germany, which had little or no utility for a naval air arm, the development of naval aviation must have been thought excessive when the *Luftwaffe* could easily reach and interdict the ports and shipping lanes used by Great Britain's merchant fleet. When it could not, submarines were more suitable to the sinking of those vessels far west of the British coastline. Because of the different air power doctrines developed, the following sections will provide background information concerning the recurrent themes of air power development.

a. Aircraft and Sea Power

As it was for the world's armies after the First World War, naval powers saw the future necessity for naval based aviation where ship-borne aircraft were transported to battle. As early as 1918, Great Britain embarked on a carrier building program producing the world's first aircraft carrier. Japan followed suit and built its first in 1922. As navies began thinking about the potential uses for ship-borne aircraft, four distinct missions for carrier planes became apparent. Navies could use them to bomb land targets from sea; to attack other sea vessels; to provide air defense for the battle fleet; or for reconnaissance purposes.

The British, being the first to build carriers, showed little imagination in the employment of aircraft, preferring them for spotting and reconnaissance missions. While they were able to build the assets that expanded the potential of naval aviation, they did not produce the necessary doctrine to allow for full exploitation once World War II started. In the United States, the issue of not only naval aviation but military aviation as a whole rose to the forefront of national debate because of General Billy Mitchell.

While the US Army seemed slow in its development of army air power, the US Navy moved more quickly but was divided over the utility of aviation in a battleship-driven service. It was very difficult to incorporate carrier tactics in a traditional navy that revered Alfred Thayer Mahan and dreadnought warships. Even with the impressive feats of General Mitchell's bombers sinking the cruiser *Frankfort* and the battleship *Ostfriesland*, there were many in the US Navy that doubted the ability of any aircraft to sink a properly defended battleship. (Futrell 1989, p. 37) There were many converts to naval aviation, however, and the United States slowly began the process of building and

employing aircraft carriers. By 1929, after the Fleet V exercises, then Lieutenant Franklin G. Percival noted that certain premises were generally accepted by the US Navy regarding aircraft and sea-borne aviation. He wrote the following concerning the proper role and use of naval air assets:

1. The airplane is essentially an offensive weapon;
2. If we attempt to use our planes defensively, they will not only fail to defend the fleet, but will probably be defeated in detail;
3. The logical primary objectives for the opposing forces are each other's carriers;
4. The ideal attack is one which destroys the hostile carriers, while their planes are still aboard. Hence, it must be launched at the earliest possible moment;
5. The enemy will observe the principle of concentration of forces and launch the majority of its planes in a simultaneous attack, calculated to reach home by sheer weight of its numbers;
6. An air force, if unopposed, could inflict serious injury, possibly fatal damage on a fleet. An adequate defense must, therefore, be provided against aircraft; and
7. Aside from the defense afforded by the offensive operations of our planes, the gun is the most powerful weapon so far produced for this purpose. (Weigley 1973, p. 251)

Even with this insight, there was still considerable mistrust as to the proper role of carriers in the traditional US Navy. Naval historian Fletcher Pratt concluded in 1941 that the US Navy was "primarily a gunnery navy; that is a fleet that depends in the last analysis upon heavy artillery and good shooting." (Weigley 1973, p. 253) Many shared this view--most importantly former Secretary of the Navy Franklin Roosevelt, who as president lauded the christening of new battleships entering service. (O'Connell 1991, p. 304)

This suggests that although the US Navy progressed far in the promotion and development of naval aviation, the predominant thinking concerning the proper way to wage the naval battle had not changed. The battle line of warships was still centered on Mahanian principles and the time-honored battleship. Only in Japan were changes made as to how a new battle-line should be constructed. Admiral Yamamoto, strategist and planner of the Pearl Harbor attack, saw the future of sea power as one where formations of carriers engaged with US Naval forces in a fight for Pacific Ocean supremacy. To this end, he used his influence to persuade the Imperial Navy to develop and deploy carrier-borne aircraft for their Pacific strategy in World War II. US Naval intelligence estimates were unable to determine that Japan had launched on this ambitious plan to construct in excess of ten carriers-six of which were used on the attack on Pearl Harbor. By contrast, the US Navy in 1941 had only built seven carriers-three of which were stationed in the Pacific theater. Luckily, none were present at Pearl Harbor during the Japanese attack. (O'Connell 1991, p. 314)

Although Japan built so many carriers for the anticipated operations at Pearl Harbor, they strangely did not develop strategy emphasizing the primacy of aircraft

carriers in their naval operations. Richard Overy writes that Japanese carriers were "to be used for fleet protection, for destroying enemy ships and for bringing air reinforcements quickly to distant land battles." (Overy 1980, p. 6) Admiral Yamamoto, architect of the Pearl Harbor attack, possessed a much broader vision. His ultimate purpose was the creation of large carrier formation battle groups for use throughout the Pacific theater of operations but this did not occur. Operations at Pearl Harbor proved to be an exception to the deeply embedded Mahanian principles adhered to by the Imperial Navy. The Japanese had discovered the one asset--naval aviation, that was the lynch pin of all Pacific strategy in World War II, but ironically targeted the American battleships in Hawaii as being the most deadly threat to Japanese regional hegemony. Despite their fantastic success, the Imperial Navy reverted back to form after Pearl Harbor and reconstituted their battle fleets using the battleship as the mainstay for fleet operations. (O'Connell 1991, pp. 312-315)

Other missions which gained favor among aviation advocates were the time-honored tactics of the Royal Navy. These included coastal defense and naval blockade. (Futrell 1989, p. 47) For the British, use of aircraft for blockade purposes was viewed as a cost-saving measure when compared to the enormous price of warships. A strategy which used airplanes for the bombing of ports and merchant fleets, as envisioned later by Germany in their discarding the development of naval air, was preferred by Britain because it allowed for the possible defeat of a continental enemy without having to deploy an army to Europe. This strategy fit all too well with Britain's time-tested dual policy of diplomacy backed by naval strength. The Royal Navy did not advocate this plan. It was the fledgling independent air forces that supported the use of military

aviation for these tasks. The primary targets for these land-based bombers were again the merchant fleets of continental states. Because of a service-imposed restriction against bombing civilians, the attack of ports and food stocks of any opponent was prohibited. The key to sea power was being heralded as land-based aircraft. The Royal Air Force established prominence with this developing role within British grand strategy, especially with the Army and Naval services lacking air arms of their own. The independent RAF supplied pilots and aircraft to both. Unfortunately for Great Britain, they never fully developed the aircraft necessary to fulfill the potential of the naval mission. (Overy 1980, p. 8)

b. Armies and Air Power

For all states, continental or maritime, there were few questions about the necessity of air support for ground troops. There was argument concerning the proper roles and missions of an air force which included both offensive and defensive operations. Advocates of air power concluded that the first priority of any force was to seek out the enemy air force and eliminate it. Attaining air superiority, and later, air supremacy, was paramount to unrestricted army operations on the surface. Believing that aircraft were essentially an offensive weapon of great consequence, air forces were to be used to attack enemy ground formations as well as his rear areas containing supply and logistical centers. Finally, air forces were necessary to protect one's own rear areas and ground troops. (Overy 1980, p. 9)

While the roles and missions were well known, each state fought over the degree of autonomy each air force should possess. To whom should an air force be subordinate to? What is the primary role of an air force; defensive or offensive opera-

tions? Mostly, air forces were viewed as another branch of service, like the infantry or artillery, to be used at the discretion of an Amy commander. Land commanders, therefore, preferred a piece-meal approach that parceled out aircraft to army divisions that only supported ground-based army operations. For the majority of the Great Powers in the inter-war period, the air service was seen as a necessary but auxiliary arm to the army. This was the case in the United States, Japan, Germany, the Soviet Union and France. The United States went so far as to restrict the use of air forces for any other purpose. In 1926, they wrote regulations titled, *Fundamental Principles of Employment of the Air Service* directing that air forces should be organized primarily so as to aid ground troops to gain decisive success in the land battle (Overy 1980, p. 9)

Air commanders, stressing the requirement for elimination of enemy air assets, disagreed. They fought for an independent air service with more diverse roles. Air commanders believed that an independent service arm required leaders that were schooled in the theories, tactics, and developing doctrine of the new weapon. These commanders would then provide the proper leadership to exploit advantages based on an aircraft's unique strengths of inexpensive cost, offensive capability, unmatched versatility, and demonstrable destructive power. (Watts 1984, p. 44)

Although this reflects favorably on the potential of the air weapon, most proponents of air power did not understand the total nature of the air war as it was waged in the Second World War. An air war possesses several characteristics that were neither stressed by air power proponents nor understood by the air commanders. The first was that all aerial activity was continuous. There were no set battles as experienced by an army or navy where one could retire at the end of a day and reconstitute forces for

another battle. Air forces were reconstituted quickly so long as the pilots were available and industry could keep pace with the production requirements of the war. The air battle could only be forestalled by poor weather or a military decision not to engage the enemy. This highlights the second characteristic--air forces needed adequate reserves. Air war was attritional in nature requiring the expending of large amounts of ammunition, fuel, spare parts, and spare bodies. Aircraft were used in a multitude of tasks for long periods of time. This includes night operations as well as reconnaissance, airlift, bombing, etc. Twenty-four hour operations were not uncommon. This tended to create excessive wear on the aircraft and excessive fatigue of air crew and maintenance personnel. Since aerial warfare is intrinsically a war of destruction, so long as the means to fight the air battles existed the air war could be waged. Success, however, often went to the opponent that sustained his operational efforts without exhausting his operational assets. This ultimately favored states with large manpower and industrial reserves.

Finally, an air war is a zero-sum enterprise. Because of a limited supply of everything connected to aircraft and air operations, efforts to achieve air superiority often exposed other critical battlefield or rear areas to attack from the enemy. Opposition air forces that massed for operations in true Clausewitizian form were always subject to counterattack in areas left vulnerable by the absence of air power. As evidenced in World War II, air supremacy was difficult to achieve in either theater of operations as long as the enemy had the means to deploy air forces. Air power could not be decisive until an adversary's air force was rendered useless and opposition to one's own air operations ceased.

c. Strategic Bombardment

As compared to the other recurrent themes of air power development, strategic bombing was the only one that did not require the integration of air assets with elements of the army or navy. This mission was autonomous with the purpose of destroying an enemy's war making capability using an indirect approach made popular by General William T. Sherman in America's Civil War. Strategic bombing doctrine required two objectives: eradication of enemy economic resources and the undermining of national morale. (Overy 1980, p. 12)

Military and political strategists viewed strategic bombing in two ways. The first saw strategic bombing as a method to speed up the defeat of an opposing nation. It was a way of obtaining complete victory as an integral part of a combined services campaign. Strategic bombing alone was not decisive in warfare and therefore could not be offered as a replacement for standing armies and sea-ready navies. Achieving air supremacy could only be exploited by surface military elements, therefore, command of the air was not an end in itself but rather a means to victory.

The second school of thought concerning strategic bombing was that it could be decisive through attacks on an enemy's vital centers which included bombardment of civilian populations. The rationale for strategic bombing's decisiveness was borne out of the frustration of World War I where the defensive power of modern firearms nullified an army's ability to maneuver with decisive results. As noted by Billy Mitchell about World War I:

> Progress on the ground had come to a practical stalemate by 1916; neither side could advance or retreat. . . . The art of war had departed. Attrition,

> or the gradual killing off of the enemy, was all the ground armies were capable of. The high command of neither army could bring about a decision . . . (Mitchell 1960, p. 6)

In the United States and Great Britain, strategic bombing received serious attention. The two countries' goal in reviewing this strategy was an attempt to reinstall swift, decisive victory in war. Air power was heralded as a way to wage war cheaply and easily whereby the disruption of an economy and the terror bombing of civilians were, in fact, a sane and humane alternative to the carnage of the First World War. Since the occurrence of war was not likely to end, air power represented a departure from the "the old theory that victory meant destruction of the hostile main army . . . " (Overy 1980, p. 13)

Although these assumptions concerning air power were not tested, they gained widespread support in democratic states. Politicians became advocates of air power because they understood its logic. It was easy to sell to a public not interested in military policy for a variety of reasons. First, air power was relatively cheap when compared to other military requirements such as battleships. Second, it involved operations of minimal risk but carried the promise of maximum impact. Finally, air power was frightening. The thought of aerial bombardment could induce a skeptical public to support the development of air forces for home defense. When Charles Lindbergh crossed the Atlantic Ocean in 1927, the idea that other states could use air power to attack far away cities became a plausible and compelling concept.

Advocates of strategic bombing erred, however, in their basic assumptions concerning a new type of war from the air. They believed that the industrial centers and

civilian populations were fragile targets that would easily succumb to the devastation of aerial war. Lord Trenchard, head of the Royal Air Force, asserted that the moral effect of bombardment would be twenty times greater than its material damage. (Overy 1980, p. 13) This is fascinating since no air command of either side during World War II could effectively measure the effects of bombing populations--it was too subjective. The British thought, however, that air power might produce a deterrent effect on potential enemies. This proved to be false. Bombing of civilians in Germany and Britain only solidified civilian support for their governments and strengthened their morale throughout the war. (Weigley 1973, p. 238) As for the bombing of vital economic centers, that proved to be a tough nut to crack for the allied air forces.

For most strategists, the enemy economy was viewed as the important target for strategic bombing. The bombing of enemy economic centers sped up the process of defeat by making the process of waging war impossible to sustain. Elimination of the economical support for the military forces in the field would result in a diminution of their ability to fight. This was accomplished through a thorough review and subsequent targeting of the enemy's industrial base that supported their military operations. This was known in the US Army Air Corps as "the industrial-web concept." (Watts 1984, p. 18) An example is the targeting done in World War II by the United States and Great Britain. They concentrated on economic and military targets of significance such as oil refineries electrical facilities, ball bearing plants, and aircraft factories. Both countries acted on the premise that a "modern industrial state would cease to function if certain vital elements within its more important economic systems could be destroyed." (Watts 1984, p. 18) Although national morale may crumble because of this type of

bombing, it was not necessary to bomb civilians to achieve it. This strategy was problematic for the allies because of two basic assumptions that later were shown to be false: the destruction of the vital economic centers could be achieved by daylight precision bombing from high altitude, and the well planned and well flown bomber formations could penetrate any aerial defense system. (Watts 1984, p. 18)

Of all the air forces which participated in World War II, only the United States displayed a long-term commitment to strategic bombing. Neither the Germans nor the Soviets committed any serious effort to the development of strategic bombardment. This is most likely due to their experiences during the Spanish Civil War where the tactical air strikes in support of ground operations were highly effective. The British committed early to the concept of strategic bombing and found the independent action of its air forces favorable in their colonial operations. By the late 1930s, however, British surveys concerning the means, both technical and tactical, of conducting such a bombing campaign showed the Royal Air Force to be inadequate to the task.

d. Aerial Defense

Prior to World War II, only Great Britain adequately prepared for aerial defense. The government feared the effects of strategic bombing when launched against its civilian population and vital economic centers because they believed air power possessed the ability to deliver a swift, decisive attack. It was the same premise on which they developed their own independent air force. Britain feared bombers especially because these weapons were thought capable of creating instant political instability, and possibly anarchy, since British society was deemed fragile as a result of the Great Depression. (Smith 1984, p. 48) From a military standpoint, Britain's strategic priorities also

demanded that an adversary's strategic bombing be thwarted, thereby denying the swift decisive victory promised by air advocates. This would allow Britain to execute its traditional wartime strategy with a different instrument. Historian Malcolm Smith writes that Sir Thomas Inskip, architect of this strategy, recognized that:

> . . . the way Britain should fight a second major war was not very different from the way she had fought the first; indeed, it was not very different from traditional British strategy in its essential points. The security of the home country was the essential prerequisite, and victory would be won by attrition in a long war. The RAF was to fit in this traditional strategy, first by providing close fighter defense in the early stages of the war and, second, by providing the bomber force which would act as a supplement to the traditional mechanism of attrition in British strategy, maritime blockade. (Smith 1984, p. 184)

To this end they created a sophisticated air defense network that included the world's best command and control facility using the latest communication, radar, and intelligence dissemination of any country in World War II.

Other countries did not develop air defense because they did not have Britain's geopolitical viewpoint. The United States still relied on the breadth of two oceans to keep most adversaries at bay. Most continental powers did not worry about invasion from the sea. Their potential adversaries were also land powers and therefore they developed most of their air assets to aid the army in attaining military objectives on the ground where the perceived usefulness of aircraft would be the most decisive. Germany, for example, did have radar as did the British, but they did not have centralized early warning for air raids nor a centralized method for disseminating intelligence about imminent air attacks. In the Soviet Union and Japan, there was also no centralized air defense network and few fighters were retained to counter large bomber formations.

As for the United States, France, and Italy, there were even fewer assets assigned for this mission. (Overy 1980, p. 18)

Great Britain developed air defense capabilities, but it should be noted that this happened as a result of Sir Thomas Inskip's efforts in 1937. Overall, the establishment of any air defense capability was remarkably slow because of prevailing attitude and doctrines of all states. For the British, the speed of the German air rearmament made the possibility of strategic bombing an imminent reality and therefore required an evaluation of their military force structure. (Smith 1984, p. 174) Overestimating the destructive ability of the *Luftwaffe* to deliver a "knockout blow" Britain began a fierce rearmament program and had to prioritize air assets for the protection of their vital centers. Surprisingly, they chose to construct pursuit aircraft in opposition to popular political and military sentiment that bombers should be the mainstay of British air forces. Even so, air defense capabilities grew slowly or not at all in other countries.

Air defense was slow to develop because of a variety of reasons. First was the pervasiveness of offensive air doctrines. With almost a universal belief in the inherent advantage of offensive air operations, most air forces thought it to be a wasted effort to assign aircraft for this mission. It was believed that there was no defense against bombers. The United States incorporated this into their doctrine right up to the beginning of the Second World War. (Watts 1984, p. 18) Second, up until the latter part of the 1930s, there was a great disparity in performance between pursuit aircraft and bombers. As aircraft technologies expanded, the performance of bombers met or exceeded the performance of pursuit planes--some of which at the beginning of World War II were outmoded biplanes. Third, many nations relied on passive defense measures. This

included the dispersal of economic centers or the deployment of anti-aircraft artillery batteries. Each country produced their own rationale for not concentrating on aerial defense in the same manner as the British. In Italy, for instance, the doctrine of attack stressed by Giulio Douhet was revered by Mussolini. As Minister of Aviation, he was fascinated by offensive air doctrines so much that he placed supreme emphasis on constructing heavy bombers. To Italy's detriment, *Il Duce* ignored other aspects of aerial defense, such as anti-aircraft batteries, modern fighters, and air raid shelters. (Overy 1980, p. 129) France believed that aircraft provided the element of surprise. This would be lost if air assets were assigned to passive defense roles. The United States still clung to the idea that the bombers would always get through to the target area. They did not begin to change this view until the appalling losses of 1942 and 1943 provided sufficient evidence to require a review of their doctrinal premises. (Overy 1980, p. 16)

3. Synopsis

In this review of recurrent themes and significant factors of air power development, note that the formulation of any doctrine is based on belief--a belief in the best way to conduct military affairs. Because it is a belief, doctrine can only be developed through trial and error experience as to what works. What is noteworthy about the air power doctrines of the inter-war years is that they were the best guesses of the nations that developed both the weapons and the methods to use it. Richard Overy describes this as an "act of faith," because there was so much practical doctrine created with virtually no experience. (Overy 1980, p. 17)

The result of this "act of faith" was that no state could be certain if its air power doctrine would aid or harm its national security. Did they choose correctly? Did their

experiences in the air war validate their doctrine? Even if successful, could a nation ascribe its success to successful doctrine, to superior technology or to greater numbers? What is interesting about these questions is that there did not appear to be skepticism over the determination of premises that formulated air power doctrine. The threat of destruction through bombing was overemphasized between the wars as was the fragility of civilian morale. Overstating bomber capability in relation to fighter aircraft almost persuaded the Royal Air Force to stay the course and not develop aerial defense capabilities. These premises were unsupported by any evidence yet yielded the balance of arguments for constituting an air force one way versus another. As quoted by a senior American air officer, this was because air power had the potential to "compel an enemy to submit to the will of another." (Overy 1992, p. 8)

Even with these ambiguities over the correct way to employ air forces, two distinct themes emerge when one looks at air force deployment in World War II. Richard Overy notes that states use air power either in a limited manner, where only one doctrine was emphasized to the exclusion of others, or in a general manner, where all doctrines were fully developed and integrated within the air force and also integrated with other armed services for combined war operations. An example of the limited manner air doctrine is seen in Germany's use of air power in full cooperation with the *Wehrmacht's* ground objectives. An example of the general air doctrine that fully developed all aspects of air doctrine is the British version of air warfare which included naval and army cooperation, strategic bombing, and aerial defense.

What is certain about the proper role and doctrine of an air force is that a state's security depended on the correct use of the air instrument. This is because through air

power, wars evolved into an affair where not just the armed forces clashed, but also the entire political, economic, and social structures that embodied a modern state. A modern air force made possible the concept of total war where no aspect of one's society could be excluded from ruination. At the end of World War II, this proved to be devastatingly true.

D. HUMANITARIAN CONCERNS OVER AIR POWER

With the advances made in aircraft during the inter-war years and the air operations of World War I, evidence was mounting that the air war instrument was capable of destruction on a level that the world had never seen. No discussion of the development of air power and doctrine would be complete without addressing the concerns of all nations to the potential devastation of aerial bombing. It is a matter of history that the great powers of World War II were well aware that aircraft would add a new dimension to the fighting of wars as well as increase the harm perpetrated on civilian populations.

Part of the problem with the use of air power was the belief that aerial bombing would not be discriminate within the boundaries of codification under the Laws of War. Historically, the codification of war was developed in order to render some protection to those that were not actively participating in the fighting. Over time, both army and naval warfare became restricted in what harm they could inflict on populated areas based on time-honored practices and international agreements. This was attempted between the world wars for the use of military aircraft, but it must be noted that no such agreement was signed by any belligerents prior to World War II. To fully understand why this occurred, it is necessary to view the history and remain objective. The context of the times dictated the employment of aircraft in World War II. It is not only in hindsight that

the harsh moral, ethical, and legal arguments arose to condemn the activities of those who fought. The decades between the wars were replete with attempts to constrain the potential destructiveness of aerial bombardment.

The basis for arguments against the use of aircraft for bombardment rests with this question: Do military considerations necessarily overrule humanitarian concern for civilian populations and property during war? Advocates of international law could argue that although no formal agreements were signed before World War II, sufficient precedent existed to preclude air bombing strategies. This precedent was extrapolated from the Hague Rules for the conduct of Land Warfare and Naval Warfare under bombardment. Others reviewed the international agreements leading up to World War II. In this area, they find the first attempts to prohibit dropping objects from aircraft was established by The Declaration of the Hague in 1899. Signatories agreed to ban the dropping of explosives from aircraft for a period of five years. (Messerschmidt 1992, p. 298) By the Conference of the Hague in 1907, the Wright brothers had made the first flight of their aircraft and the world's armed forces were interested in the application of air machines for war. Conference attendees France, Germany, and Russia, refused to continue the ban and the prohibitions were dropped.

During World War I, bombing by aircraft became a regular activity so that recognized patterns of behavior emerged with regard to what was acceptable. The burden of protecting civilians rested with the defender of cities as it did when any city was subject to artillery or naval fire. No precedent was set with regard to an attacker bearing sole responsibility for civilian casualties. There was concern that insufficient protection of non-combatants was likely because of the indiscriminate nature of aerial bombardment

coupled with the commingling of civilians and legitimate military targets. No further measures were debated until 1922. (Messerschmidt 1992, p. 298)

The next treaty that sought to inhibit the probability of war was the Washington Disarmament Conference of 1922. At that conference, international efforts centered mainly on restricting the growth of battleships but attendees also sought to regulate the use of aircraft in war. There was a general agreement to consider whether the existing rules of international law adequately addressed newer methods of attack as established by the use of military aircraft. The delegates, allies in the previous war, became distrustful of each other. They were unable to agree on the proper role and employment of either military or civilian aircraft. The imposition of effective constraints, either on the size of an air force or aircraft capability, did not occur. At the end of the conference, the Washington delegates accepted a recommendation to settle the issue at the next international conference. (Parks 1992, p. 332) The subsequent 1923 Hague Commission of Jurists was beset by problems, the least of which were humanitarian concerns over aerial bombardment. Delegates to the Hague contended not only with their fellow conferees, but also with their attending military advisors. Inter-service bickering over the proper use of air power and refusals to limit the practical advantages of aircraft severely tested the delegates' ability to draft a general agreement. The Aviation Subcommittee conference debates centered on the vital questions surrounding strategic bombing. These debates became sticking points for progress and addressed these difficult questions:

1. What constitutes a lawful military target?

2. What is the criteria for attacking a legitimate military objective within a civilian population center?

3. Can a military bomb targets at locations other than the immediate area of military operations?, and

4. Where does an attacker's responsibility for collateral civilian damage begin and end?

5. Where does a defender's responsibility for collateral civilian damage begin and end?

All delegates to the conference favored rules protecting civilians from air attack, but no single draft was agreed upon. Part of the problem was that the questions listed above posed difficulties for states at the forefront of military aviation development. No state wanted to accept an agreement that would stifle its aviation efforts or render useless an aircraft's inherent advantages. The Aviation Subcommittee could not reconcile the issues concerning legitimate military operations with the Hague Commission's desire to protect civilians. In order to find resolution, they handed their work to the overall committee which subsequently drafted the Hague Air Rules. These were adopted unanimously by the Commission. Significant provisions concerning strategic bombardment included the following:

1. Article 22: Aerial bombardment for the purpose of terrorizing the civilian population, of destroying or damaging private property not of military character, or of injuring non-combatants is prohibited;

2. Article 23: Aerial bombardment for the purpose of enforcing compliance with requisitions in kind or payment of contributions in money is prohibited; and

3. Article 24: (1) Aerial bombardment is legitimate only when directed at a military objective, that is to say, an object of which the destruction or injury would constitute a distinct military advantage to the belligerent.

(2) Such bombardment is legitimate only when directed exclusively at the following objectives: military forces; military works; military establishments or depots; factories constituting important and well-known centers engaged in the manufacture of arms; ammunition or distinctly military supplies; lines of communication or transportation used for military purposes.

(3) The bombardment of cities, towns, villages, dwellings or buildings not in the immediate neighborhood of the operations of land forces is prohibited. In cases where the objectives specified in paragraph (2) are so situated, they cannot be bombarded without the indiscriminate bombardment of the civilian population, the aircraft must abstain from bombardment.

(4) In the immediate neighborhood of the operations of land forces, the bombardment of cities, towns, villages, dwellings, or

buildings is legitimate provided that the military concentration is sufficiently important to justify such bombardment, having regard to the danger this is to the civilian population.

None of these articles were adopted by states prior to 1939. The conference was an immediate failure. In fact, no attempts to amend the 1907 Conference of the Hague Laws of War were made until 1974. Historian W. Hays Parks offers this reason for the states' refusal to sign the 1923 treaty. He asserts that the international delegates and their lawyers did not compose acceptable rules for air warfare because their drafts were "at odds with state practice, technological advances and military thinking." (Parks 1992, p. 339) Non-combatants indirectly assisted the national war effort through their jobs and also lived in close proximity to sites that produced military materiel. Civilians remained at risk because the delegates could not neatly separate legitimate military targets from normal civilian activities. This occurred mostly for two reasons:

1. The industrialization and mechanization of a government's war effort blurred the distinction between combatants and non-combatants because of a civilian's participation in the production of war materials. In industrialized nations, civilian contributions to the war effort were viewed as valuable to winning the war when compared to those who actively fought. Aircraft were particularly suited for action against the civilian's efforts because they could reach an adversary's industrial base unhindered by the normal obstacles encountered by ground forces; and

2. There was sufficient precedent for attacking legitimate military objectives so long as ordinary care was used in executing the attack. This statement meant two things: it was understood that collateral civilian casualties could not be the primary objective of an attack; and, civilian injuries were an acceptable and unavoidable result of bombardment. Collateral civilian casualties were also viewed as an allowable means to demoralize an opponent. This was established early in the history of warfare based on the range of artillery. The breadth and depth of a battlefield was determined by what targets could be reached by artillery. Anything within that range was at risk. With the advent of modern aircraft, the battlefield was stretched to new proportions. (Parks 1992, p. 339)

This section shows that the international efforts to curtail the destructive potential of air power failed to do so prior to World War II. The states that employed aircraft in the war were well aware of the humanitarian issues at stake but decided not to hinder their use of aircraft. The aircraft was viewed as a weapon which would return decisiveness to warfare and allow swift victory. States would accept an increase in brutality for a measure which would shorten the war, thereby avoiding the carnage of World War I. By 1939, the total war concept had enveloped the world and its new industrial weapons were the tank, submarine, and airplane. When nations warred, the totality of society; its political, economic, and military aspects, warred also. All elements of that society became liable to attack because all elements were inter-related to the war effort. It is

unfortunate that the use of aircraft was not as decisive as was believed. It is not difficult to believe that the course of the war unfolded in as brutal a fashion as it did.

E. CONCLUSION

This chapter reviewed essential elements of air power development. This was to provide insight into the significant factors affecting development of the air weapon as well as a discussion of the recurrent themes. These are important for understanding that states developed air power constrained by the same factors as their neighbors. Also noteworthy was identification and evaluation of the discernible themes in air power employment. In the subsequent chapters, both the themes and significant factors determine the structure and use of air power in World War II. States developed the air weapon knowledgeable of its destructive potential whereby humanitarian concerns for civilian life and property were seemingly ignored. There were no naive belligerents with regard to air power as sufficient attempts to curtail aerial bombardment failed and led to unprecedented civilian deaths in war.

The case study analysis of the next three chapters will focus on the development of air power theory and doctrine. Because of air power's unique ability to provide humanitarian assistance or deliver destruction, the case studies will examine democratic states with regard to the following questions:

1. What air power theory was advocated?
2. How did the theory manifest itself in the development of doctrine?
3. Did the force structure match the doctrine?, and
4. Application of assets--How did the country employ air power?

The time period for the review will be the inter-war years of the 1920s and 30s, where the air weapons had matured into a decisive military instrument. It is an important period because the doctrines that developed were based on the shared experiences of World War I, the lessons learned in the Spanish Civil War, and the awareness of potential civilian deaths caused by the use of air power.

V. CASE STUDY ANALYSIS: L'ARMEE DE L'AIR

A. INTRODUCTION

> *French aviation was merely a juxtaposition of small aerial units. . . . In peacetime , for convenience of administration and command, these small units were organized into air fleets. . . . But after . . . mobilization, . . . 86 percent of their fleets were to be dissolved into pursuit groups and observation escadrilles, at the disposal of the commanders of the land armies. French Air Minister Pierre Cot* (Ropp 1959, p. 285)

The above quote neatly summarized one of the important problems with French military aviation prior to World War II. It implies that a lack of cohesiveness existed among French aviation units and highlights insufficient training, leadership, and cooperation with other military services requiring aviation support. In the 1940 Battle of France, this was manifested by the rapid defeat of French military forces inflicted by the German *Wehrmacht*--a defeat delivered mostly by armored units in contradiction to what was prophesied and promised by air power advocates.

L'Armee de l'air was noteworthy because of what it failed to do. In the six short weeks of war, the French Air Force failed to field but a few modern aircraft which were outclassed by superior German air machines. Employing obsolete aircraft, the French Air Force could not commit to any long-term air defense. Air forces were also assigned and subordinate to regional army commanders so that while France possessed 1500 combat aircraft, only 600 were in units that actually fought. (Posen 1984, p. 84) The combined French and British air forces conducted no bombing campaign in the German rear areas as their main purpose was to clear a path for advancing French armies or to protect allied

troops. Allied leadership did not understand German economic or military vulnerabilities and subsequently could not agree on targeting priorities. Concern for waging unrestricted air warfare effectively limited air activity to the immediate battle areas for fear of enemy retaliation. The overall air effort became dispersed over numerous objectives and was ineffective in stopping or delaying the German armies. (Overy 1980, p. 30) Air superiority was never sought, and quite naturally, never achieved.

It should be noted that French military strategy was founded on premises concerning the waging of the coming war. French military failure, on the ground and in the air, could be attributed to what France believed about the future conduct of the war. French political and military strategists accepted the premise that the conflict would evolve slowly. War would return to the slow ground advances that characterized the battles of World War I. Their initial plans supported a careful defensive war. Because they acknowledged German superiority in war material, military personnel, and industrial output, they believed France required a strategy that would halt or stall German advances until combined allied assistance could roll back the enemy armies. Construction of the Maginot defenses reflected a national policy to "protect the slow mobilization of Allied arms and manpower before counteroffensives into Germany." (Ropp 1959, p. 284) To this end, French military strategy was very conservative. It stressed firepower over maneuver; defensive strategies and tactics over inherently offensive ones; and tactical security over battlefield risk. (Posen 1984, p. 85) The Air Force was not well integrated into this strategy and found its air fleets subordinate to the Army.

As part of the case study analysis of democratic states, the evaluation of French air power doctrine is accomplished to determine if its development and subsequent

guidance to air strategy reflects the culture, perceptions, and practices attributed to democracies by the Democratic Peace Theory. In evaluating French air power development for examples of humanitarian concern, one finds that French air policy was essentially flawed because its establishment of air doctrine, force structure, and employment were unclear. The muddied doctrinal policies of the French Air Force were accompanied by a general reluctance to engage in unrestricted air warfare. Because the battle for France ended so quickly, one is unable to determine if this reluctance would have continued through a long campaign. The evidence of air operations shows that French air forces engaged the enemy mostly in the main battle areas in support of ground troops and not in the enemy's vulnerable rear areas. Had the battle lasted longer, other aspects of French doctrine might have been observed that would shed more light on possible humanitarian aspects regarding their use of air power. For this study, the search for answers will focus on French air power theory in the post World War I environment; the development of their doctrine; force structure; and French employment of air assets.

B. FRENCH AIR POWER THEORY

The development of French air power theory was a difficult process. Like all air forces in World War I, they learned by trial and error. In 1914, they used their aviation assets primarily for artillery spotting. As the quality and quantity of their aircraft improved, they became interested in the concept of strategic bombing and were the first to use it. Their initial sorties were ineffective because they discovered that aerial bombing required mass and concentration, similar to that used by artillery, to be effective. They did not achieve success with the concept until they obtained aircraft in sufficient numbers. The French, however, did impose restraint in the conduct of these operations as

they limited their attacks to the battlefield and immediate rear areas of the enemy. These missions targeted soldiers presently engaged in battle, supply depots, troop concentrations, and rail lines. (Christienne and Lissarague 1986, pp. 78-80)

In 1915, the quality of their fighter aircraft improved so that they could conduct aerial maneuvers *en masse*. This included the use of large V formations of bombers and patrolling flights of fighters. Their main purpose was to destroy enemy balloons and spotter aircraft so as to blind the enemy artillery. They found that the concept of air superiority was vital if they wanted to continue their employment of spotter and reconnaissance aircraft for French artillery batteries. It was also useful for sustaining their bombing operations. The French established a priority of missions based on these experiences. The first priority was the successful accomplishment of the spotting and bombing missions. This permitted French artillery and infantry to conduct their missions unimpeded by enemy action, either in the air or on the ground. Secondary to this mission were all other air missions that did not directly contribute to spotting or bombing. The fighters became important because they were specifically used for protection of the spotters and bombers. It was soon realized that these priority missions could only be sustained by concurrently sustaining the fighter operations that protected them. Since the primary threat to the priority missions was from enemy aircraft, the French resorted to attacking German airdromes to eliminate opposition while it was still on the ground. Attacking German airdromes proved to be highly ineffective as poor navigation, unsuitable bomb loads, and active defense measures by the Germans turned back all of the French assaults. These missions were abandoned later when no clear result was achieved. (Christienne and Lissarague 1986, p. 118)

As with the other great powers, France learned many lessons from the battles of World War I. At the battle of Verdun, their fundamental air doctrine was established where they learned, correctly at that time, that air superiority was a necessary, but not sufficient, condition to winning the land war. Aircraft engaged in pursuit operations and bombing with considerable success. Although many feel that the influence of Giulio Douhet was present in the development of a quality air power theory as shown by French air operations, the principles and policies were established by the French airmen. Douhet's theories were not written until 1921, almost three years after the armistice ending the Great War. The fledging French air forces established their air operations based on air superiority first in order to clear the skies for higher priority missions. After achieving air superiority, these assets were used for other combat support operations. (Christienne and Lissarague 1986, p. 205)

The lessons derived by the French experience in World War I eventually became the basis for their air theory and doctrine. The primary lesson was that without air superiority, no other air operations could hope to succeed. They were needed for all aspects of spotting, bombing, and reconnaissance. They also learned that air power was not decisive with regard to operations on the ground. Aircraft were unable to fulfill the totality of missions as envisioned by strategists and planners. They provided no "decisive blow". The French tried their hand at strategic bombing, but only in the immediate battlefield and enemy rear areas. While they enjoyed success with these operations, the ground war was still the decisive element in the victory. Air power provided the French Army with a means to slowdown enemy operations, facilitate counterattacks, or to provide valuable reconnaissance information. This was accomplished through the direct

coordination of all aerial assets as well as coordination between operations on the ground with operations in the air. For the French Army, there was no question as to the proper role for an air force. The Air Force's primary function was to operate an extension of the land forces and to remain subordinate to the Army commander. The Army believed that air power could not provide the margin for victory but could supplement and enhance operations on the ground. (Robineau 1992, p. 417) This aspect of French air theory at the close of World War I differs from the predominant air theories of the inter-war period as espoused by Giulio Douhet.

Giulio Douhet was the world's foremost air theorist in the period following World War I. He advocated the use of aircraft in a slightly different manner than the French airmen of World War I. Douhet proposed an autonomous air service for the establishment of *Il Dominio dell' Aria*--the Command of the Air. Because Douhet believed that land warfare was doomed to stalemate, he advocated a theory proposing the use of aircraft to inflict mortal blows upon an enemy. This was accomplished by establishing command of the air through the deliberate destruction of an enemy air force. For Douhet, air superiority was a necessity for victory and the best time to establish predominance in the air was to destroy the enemy air force on the ground. After establishing command of the air, the nation's air forces would then turn their attention to the destruction of the enemy nation at points other than the immediate battle areas. Targets included transportation, communication, and population centers. Correct selection of the most vulnerable enemy targets provided the basis for an aerial strategy. (Douhet 1921, pp. 28-31) His most important difference with the French military was that Douhet believed that air power alone could achieve victory in war by returning decisiveness to warfare.

Douhet's futuristic vision did not include the notorious dog-fight battles of the previous war. He correctly anticipated that the next aerial war would be won by a nation's technical and production abilities as well as the definitive capabilities of an air force. Offensive aerial strategies would replace defensive ground strategies because the development of firepower had rendered aggressive, attacking land warfare unlikely to succeed. Air strategies were desirable because they could provide swift, decisive victory.

At the end of World War I, French military aviation was the best in the world. The aviation industry produced the world's finest aircraft and the French Army possessed the most effective air forces. The only serious rivals to French military aviation were the British, as American air forces were infantile in development and German military aviation was prohibited by treaty. With their apparent lead in the development of air policy, principles, and industry, one would think that France would maintain this lead up to the next war. This did not happen. During the 1920s, France was sick of war and became decidedly pacifist. Their large military establishment of World War I was slowly reduced to bare minimum. This was followed by concurrent declines in the French aviation industry and in the development of a modern air force. The formulation of new air power theory, strategy, and doctrine stagnated. For *L'Armee De l'air*, the following decade of peace offered only secondary roles to the air force and supporting operations in the colonial politics of Syria and Morocco. (Christienne and Lissarague 1986, p. 206) There were simply not enough aircraft, air crew, or interest to sustain French aviation development in either civil or military arenas.

Table 3 displays the overall decline in military aviation as French postwar demobilization produced cuts in air crew, maintenance personnel, unit strength, and aircraft.

The overall reductions in these areas are tremendous when compared to the end-of-war totals. What is noteworthy is the 93% reduction in operable aircraft. Although the French air forces took delivery on all ordered aircraft as well as those being built, the military reduced the total number of airplanes by 66% and then placed 3,050 of those aircraft in storage. Only 890 remained for operational duty.

French Military Aviation Reductions After World War I

	November 1918	October 1920	Percent Reduction
Personnel	90,000	39,055	57%
Flights	258	119	54%
Aircraft			
-- **Total**	11,836	3,940	66%
-- **Reserve**	3,886	3,050 placed	
-- **Interior**	400	in storage.	
-- **Overseas**	300	890	93%
-- **Schools**	3,000	maintained at the units.	
-- **Front**	3,437		

Table 3. French Military Aviation Reductions After World War I
Source: Charles Christienne and Pierre Lissarague, *The History of French Military Aviation* 1986.

The civilian aspects of French military aviation also suffered from demobilization. The deepest cut was made in the French government's Technical Bureau which controlled and directed all activity in the aviation industry. Concurrent with the reductions enacted by the military, government employees were reduced from 4,000 to 40, directly contribut-

ing to France's degeneration in aerial research activity. This information may lead one to believe that the aviation industry disappeared after World War I. That did not occur as many of the aviation employees transitioned to other work. Still, there was a drastic downturn in the number of aviation businesses. In 1918, approximately 50 firms comprised the French aviation industry, but by 1920, the majority were out of business and only ten remained. (Christienne and Lissarague 1986, pp. 207-209)

In the five years after World War I, French military aviation declined in all areas of importance. The reductions in highly trained personnel, new equipment and aircraft, and in science and technological development resulted in a service that lacked direction. The development of doctrine also stagnated as many of the lessons learned in the First World War were lost. The French military did not care to create an air division, let alone an autonomous air service capable of independent action. Unique air missions such as air superiority, strategic bombing, and air interdiction did not attract much attention or support from the French military that just spent four years proving the effectiveness of modern, massed firepower. The French Military also had little use for its former aviators and their pursuit of an air service.

Military air officers found themselves scorned by the mainstream French military. Lionized by the press, many of the French pilots of World War I either left the service or rejoined their old branches of service to continue their military careers. Others chose to pursue civil aviation employment. There existed a sentiment by the French military, and the public as well, that aviation was inherently dangerous and not a proper career choice for an officer. Officers that continued to fly, along with the newer volunteers, were held in low esteem by contemporaries who felt that an aviator's life was an easy one. This led

to low numbers of men willing to remain in the air force. Recruits were also difficult to acquire. These volunteers had to pass rigorous medical and physical screening before admittance to the air force thereby decreasing the men available for service. They received inadequate training in old airplanes and received very low pay. The situation worsened to the point that draftees were selected to meet demands for new pilots. (Christienne and Lissarague 1986, pp. 223-225)

Structurally, the post World War I air forces found themselves reorganized under the Ministry of War. French civil aviation was not so fortunate, however, as an increasing amount of government bureaucracies established their own aeronautical branches. These included air service for colonial missions, civil transport, and postal services. There was no central controlling agency and no management for military aviation outside of the army. French politicians attempted to correct the situation by creating an Office of General Coordination of Aeronautics (OCGA) in June 1919, to provide executive oversight of all civil and military aviation under control of the Ministry of War. The next year, the government established the Undersecretariat of State for Aeronautics and Air Transport and effectively moved the OCGA from the Ministry of War to the Ministry of Transport. The result of this bureaucratic shuffling was threefold:

1. The French Army remained in firm control of all military aviation, outside of most government oversight;
2. The French Ministry of War lacked any voice in the development of French aviation industry for military purposes; and

3. The continued development of air power doctrine stalled. (Christienne and Lissarague 1986, p. 211)

With the new reorganization of French government, military aviation was given a subordinate role to the Army that continued until World War II. The French air forces were assigned to protect the mobilization process of the next war and to operate during the first land battles as an adjunct to the army. There was considerable attention paid to maintaining an air division within the army so as to be capable to launch sorties immediately upon the start of hostilities. This was to prevent having to wait for mobilized reinforcements to be called for duty. (Christienne and Lissarague 1986, pp. 211-212)

This initial mission for the air force in the aftermath of World War I is the first indication of future French air doctrine. It was created under the considerable influence of the Army that continued to view air forces as service components of the land commander. Army influence remained firm in all aspects of French military aviation. The predominance led to the fierce debates and future problems in the development of a coherent air doctrine. The next section will address these debates and the doctrinal problems of the French air forces.

C. THE DEVELOPMENT OF FRENCH AIR DOCTRINE

In the aftermath of World War I, French military forces entered a period of stability. The air forces continued their subordinate role to the Army and conducted limited operations in the French colonies. Air operations on the European continent were also limited to normal patrol and training flights. French military leadership encouraged

their airmen to participate in long distance flights for aviation records, military flybys, and air show reviews. With no change to their organization or chain of command, the air forces were elevated in status to a service arm of the French military. This reflected the Army's view that air forces were indeed subordinate to the ground commander in war. Establishing the air force as a service arm was the logical next step in the development of French air power considering that the move accurately reflected the use of French air assets in World War I. This happened on December 8, 1922, but it would take another six years to create an Air Ministry, and more than a decade for the French to establish an independent air force. (Forget 1992, p. 416)

During the period following the establishment of the air force as a service arm, French air advocates, both in and out of the service, began to reflect on the proper future employment of an air force on the conduct of war. Mindful of the French experience in World War I and the current air operations in the colonies, these advocates initiated the great air debate in France. It was not a new debate or one isolated to France. All the world's armies engaged in it at practically the same time, some with notorious consequences. In Italy, Giulio Douhet was sent to prison for espousing his revolutionary theories on air power. Released the following year, he was supposedly rehabilitated and became a Fascist and also the world's most famous air power theorist. In the United States, Billy Mitchell found his ideas on the establishment of an independent air force virtually ignored. This occurred after he provided concrete proof that aerial bombing could provide a possible margin of victory against naval warships, and quite possibly, on land forces as well. (Christienne and Lissarague 1986, p. 236)

France engaged in this debate as well, but it did not receive the same early attention as in other countries. France's air power debate was also in the shadow of the slow, steady degeneration of its aviation industry. The declining industry came to a crisis when it was learned that aviation manufacturers were 90 percent dependent on government subsidies and unable to create high technology aircraft for either civil or military use. This was manifested in the quality of French aircraft when compared to those developing in other countries. An example of the industry's decline is shown in France's simultaneous decline in world aviation records. In 1925, France possessed a majority of the 64 world aviation records. By 1927, Germany held 23, the United States 19 and only 14 by France. The aviation industry was being described by various government officials as "very sick", and "neither healthy nor stable". This led to the creation of the Air Ministry for the consolidation of all matters concerning French aviation. (Christienne and Lissarague 1986, p. 240)

With the creation of the Air Ministry, the personnel and material of both military and civil aviation were finally constituted under a single authority. It was France's best attempt to fix their aviation problems created since the end of World War I. While this was being accomplished, the debates regarding air power doctrine continued. The debate focused on the following questions:

1. What is the proper role for an air force in the conduct of war?
2. Should an air force be permitted independent air activity--a role in warfare that only it can fill?, and
3. Is air superiority critical prior to initiating a ground attack?

In the attempt to answer these questions, two theses emerged as the basis for the debate. The first thesis was proposed by advocates of air power and the second was supported by those opposed to the independent use of air assets. (Forget 1992, pp. 416-417) Air power advocates emphasized the offensive potential of air power and supported operations that attained air superiority at the beginning of any conflict. It was the single most significant prerequisite for any ground, naval, or air battle. To attain air superiority, France would require air assets that were wholly offensive in nature with the ability to concentrate its firepower on distant targets. This included the development of long range bomber fleets possessing a strategic strike capability. The second thesis rejected an offensive air power capability because it rejected the premise that the initial battle of the next war would either be decisive or fought in the air. The proponents of this thesis, most notably the War and Naval Ministries, predicted that surface forces would again be the predominant war fighting instrument of the military. Aviation assets would be used to support the activities of the Navy and Army and, therefore, would necessarily be subservient to the surface commander's needs. This thesis essentially restates the activities of the World War I French air forces. Mission priorities were once again established to conduct observation, artillery spotting, and reconnaissance operations. Fighter aircraft were required to protect these missions. Bombers were to be used in direct support of the land commander in the immediate battle area.

On the surface, this debate showed itself to be a discussion about ideas. In France, as it was in other countries having this debate, this was also a contest over the established privileges of the Army and Navy. The result of the debate would decide more than the rational use of air power in future conflict. Also at stake were the priorities of

roles and missions, appropriation of funds, new equipment and personnel, as well as the primacy of the older services in the conduct of national strategy. The Army and Navy argued convincingly, but incorrectly, that they were acting in the best interest of military aviation. Military aviation, the older services argued, would have no chance to develop if it were removed from its reason for existing--to support the surface operations of the Army and Navy. (Christienne and Lissarague 1986, pp. 314-315) They cited the experiences of the First World War, when French military aviation was the best and most successful in the world, to support their position.

Of the two theses, the view of the air power opponents would predominate as French doctrine continued to grow. Although the First World War revealed the best uses for air power to include the concepts of air superiority and strategic bombing, the French Army did not realize the potential severity of the air threat. They did not accept the concept of the initial air battle or the need for air superiority. For air power opponents, there was no utility in any of the principles of air employment such as concentration, or unity of purpose. Air forces should be subordinate because they are only capable of complementary functions--useless outside the context of the immediate land battle. (Forget 1992, p. 417)

The thesis advocating air superiority operations, however, did not go away entirely. When the French Air Force obtained its independence in 1933, its operational doctrine still reflected the support mentality of the French Army. The doctrine was referred to as the "co-operation" doctrine because it reflected the subordinate role of the air forces. General Denain, Air Minister from 1934-1936, proposed a different idea concerning the initial use of air assets for the next war. It was a reintroduction of the air

power advocates' thesis. Denain proposed that the air battle would not only be independent of ground operations, but would most likely precede it. Not wishing to draw the ire of the Army and Navy, and at the same time constrained from changing Air Force doctrine from what was previously established, the Air Ministry created new doctrine that still supported the Army and Navy, but introduced the new concepts of strategic air action, indirect support, and consolidated employment of air assets. (Robineau 1992, pp. 634-635) Using this new doctrine, the "modern" French Air Force need to:

> intervene in support of army and naval operations on a much broader basis than that of cooperation . . . by intensive bombing of his of the enemy's rear areas, by harrying his lines of communication, by attacking and disrupting troop concentrations or outflanking maneuvers . . . . and combine all their forces with those of the Army. . . It was absolutely essential, because of the limited number of air forces that France was able to maintain, that all air forces should be employed for the air battle. (Robineau 1992, p. 635)

It appears that the "modern" Air Force would find a way to incorporate offensive operations into its doctrine. This would be necessary for attaining air superiority for the coming war. It did not happen. In 1937, Pierre Cot became the Air Minister and repudiated these types of operations for being too offensive. In keeping with the defensive orientation of French grand strategy, the offensive concepts in the new doctrine were restricted. Under Minister Cot, air doctrine again favored the Army and rejected the "fatal theory of the air battle", Cot's phrase for the pursuit of air superiority in the initial battle of the next war. Cot noted that:

> seeking aerial combat for its own sake, for systematic destruction of the opposing air forces, independent of the general fighting, would lead the Command to engage practically the whole of the Air Force against uncertain objectives. (Robineau 1992, p. 636)

There were no changes to air doctrine after 1937. The implications of Cot's statement would be realized in World War II. Because French Air Force doctrine was firmly committed to the operations of the French Army commanders, the subsequent organizational structures and the conduct of air operations in the Battle of France were established. This directly led to the ineffective use of French air assets because the doctrine and force structure did not allow for unity of effort or a concentration of air operations. The French Air Force possessed some tactical advantages: rapid response, economy of force, and tactical flexibility. These were lost because the doctrine did not accurately approximate the new challenges of the coming war. A good example of this is examined in the next section. French Air Force organization and force structure reflected the desires of Army commanders but did not provide efficient prosecution of air operations for the benefit of the Army or the Air Force.

D. L'ARMEE DE l'AIR: FORCE STRUCTURE AND ORGANIZATION

In the aftermath of the doctrinal debates concerning the Air Force, a lack of clarity was exhibited by the French Air Forces as to what missions they would perform in the next war. This was caused by the Air Force insisting on the importance of the "air battle" while simultaneously supporting the Army through "cooperation." Although the doctrinal debates had ended in 1937 with Air Minister Pierre Cot deciding in favor of the Army, the Air Force had been developing other missions that were offensive in nature. They were masked in the manner by which the Air Force understood their role of "cooperation" in supporting the ground campaigns of the Army. This is best reflected in the mission statement of the new Air Force, created by decree on April 1, 1933. The Air Force was charged with the conduct of three types of air missions: combined operations with naval

and army units; territorial air defense; and air operations. (Forget 1992, p. 420) French air historian Michel Forget writes that the air battle was not forgotten but emphasized:

> The importance of the 'air battle' is clearly explained in the directive: 'The role of the Air Force in war is to create a situation in which the air can be used for all purposes . . . and to prevent the enemy from using it for the same purposes.' Of course, this battle has a defensive aspect, but also an offensive one: 'In the offensive mode, the object of the air battle is to destroy the enemy's vital forces by attacking his armed forces (air, ground and naval forces), means of communication or bases which enable his forces to maneuver, as well as the centers of production which provide these forces with all kinds of resources.' Cooperation with the Army receives just as much emphasis: 'Participation in the ground battle is ONE OF THE ESSENTIAL MISSIONS of the Air Force. All its capabilities cam be employed here. The major Army units employed possess an air-control element and Air Force formations to carry out air screening and reconnaissance . . . for their immediate benefit.' Forget 1992, p. 420)

In this decree, one sees the Air Ministry stressing the need to create an Air Force that can rise to the challenge of a decisive air battle but must remain committed to the doctrinal priorities of Army support. The Air Ministry realized the difficulty of serving both the Air Force and the Army. They initially chose to support the concept of the air battle as the best way to accomplish its mission decree. The Ministry's first two appropriations plans (Plan I and Plan II) reflected this choice as evidenced by the numbers of bombers ordered and constructed in 1933 for Plan I, and 1936 for Plan II. Plan I called for the construction of 30 pursuit aircraft, 68 reconnaissance, and 89 bombers. Plan II modified Plan I as a response to the changing international situation and provided for the construction of 2,795 aircraft. Bombers were to constitute 45% of the aircraft, 25% for fighters, and 30% for cooperation with Army units. (Christienne and Lissarague 1986, p. 280)

The result of the Air Ministry's choice to purchase offensive weapons to match offensive strategies, and at the same time remaining faithful to supporting the Army and

its defensive requirements, left the French Air Force with a dual character. If the Air Force was to be true to the totality of its mission statement, it needed to create a highly flexible organization so as to meet the changing requirements of war both in the air and on the ground. The surest way to do this is to determine the priority between independent air operations and combat ground support operations for the Army. Then the Air Ministry could create the correct force structure to match its doctrinal choices. This was accomplished by Air Minister Cot when he ended the doctrinal debate in favor of the Army. The Air Force was still committed, however, to some type of offensive action even if the doctrine now favored the "cooperation" doctrine. There also existed a new problem from this decision because the numbers of aircraft available for use in the "cooperation" doctrine was inadequate. To remedy the situation, the Air Ministry initiated Plan V in 1938. Plan V was the Air Ministry's appropriations plan for increasing the numbers of fighters for tactical support of the Army ground operations. The result of these purchases was that the Air Force had too few bombers for effective offensive action and too few fighters to actively support the Army.

Table 4 shows the planned production quotas under Plan V. Also included are the actual numbers and percentages of each aircraft manufactured as the totals envisaged were never obtained. The numbers show the Air Ministry's attempt to bolster the amount of fighters required to support Army ground operations. The percentages, by aircraft type, are listed to show that the aircraft constructed were comprised more in favor of the Army operations. The numbers were inadequate for the coming war including bomber strength. This resulted in an Air Force that could not fulfill the dictates of the Army "cooperation" doctrine or conduct offensive air operations to win the initial air battle.

Plan V Aircraft Production Projection and Actual Production Totals

	In Service	In Reserve	Total	Actually Built	Percentage Built
Fighter	1,314	319	1,705	1,081	41%
Bomber	995	298	1,293	876	33%
Reconnaissance	188	57	245	Recon. and Obs.	24%
Observation	707	218	925	Totals = 636	

Table 4. Plan V Aircraft Production Projection and Actual Production Totals.
Sources: Charles Christienne and Pierre Lissarague, *The History of French Military Aviation* 1986, and Lucien Robineau, "French Inter-War Air Policy and Air War 1939-1940 in *The Conduct of the Air War in the Second World War*, ed. Horst Boog 1992.

Increases to the forces in service brought French Air Force totals to 3,516 aircraft by December 1, 1939. Of the total, 1,919 were Plan V appropriations and considered to be modern. Of the 1,578 aircraft available to operational units, only 817 were modern. In May, 1940 operational air units employed 2,200 aircraft of which 1,100 were modern. The composition of these forces were as follows: 610 fighters, 130 bombers, and 350 reconnaissance and observation aircraft. (Robineau 1992, pp. 640-641)

Plan V was also accompanied by an ambitious manpower plan which was to fulfill the requirements for operating the French Air Force with its modern aircraft and equipment. The manpower projections for the Air Force were to include 12,000 pilots, 3,200 observers, and 15,000 mechanics by April 1941. As the war started for France after the fall of Poland, there was never sufficient time to establish either the manning or modernization programs for the French Air Force to be effective in the war against

Germany. At the outbreak of the "hot" war in May, 1940, French Air Forces, even when combined with the British Royal Air Force, were outclassed by the Germans in numbers of aircraft, personnel, and above all else, the formulation of doctrine. To add insult to injury, French Air Force organizational structure reflected the same dual character as did French air doctrine.

The French Air Force was organized differently in peacetime that it was for war. The model for Air Force organization was borrowed and adapted from the Army in July, 1934. (Robineau 1992, p. 637) The country was divided into four regions and organized along the same lines as the regional Army units. There was no difference between territorial command and operational command within a specified region. For the Air Force, these were accomplished by a single air regional commander. As each air unit was assigned to a corresponding ground unit, no air assets could be mobilized and separated from these Army units for immediate wartime use. Since this organization was different from the wartime set-up, the ability to conduct concentrated operations with any continuity was lost. The lines of command and authority would be confused. The Air Ministry recognized this problem in 1936, and tried to remedy the situation. Air Minister Cot attempted to reorganize the Air Force into a permanent structure reflecting the wartime requirements stipulated by Air Force doctrine. Because the reorganization proved to be costly, the succeeding Air Minister, Guy La Chambre, returned the Air Force to its 1934 organizational structure, where it remained until the outbreak of World War II. Figure 4 displays the peacetime organizational structure in 1938 of the Air Force.

Armee de l'Air Peacetime Command Structure, 1938

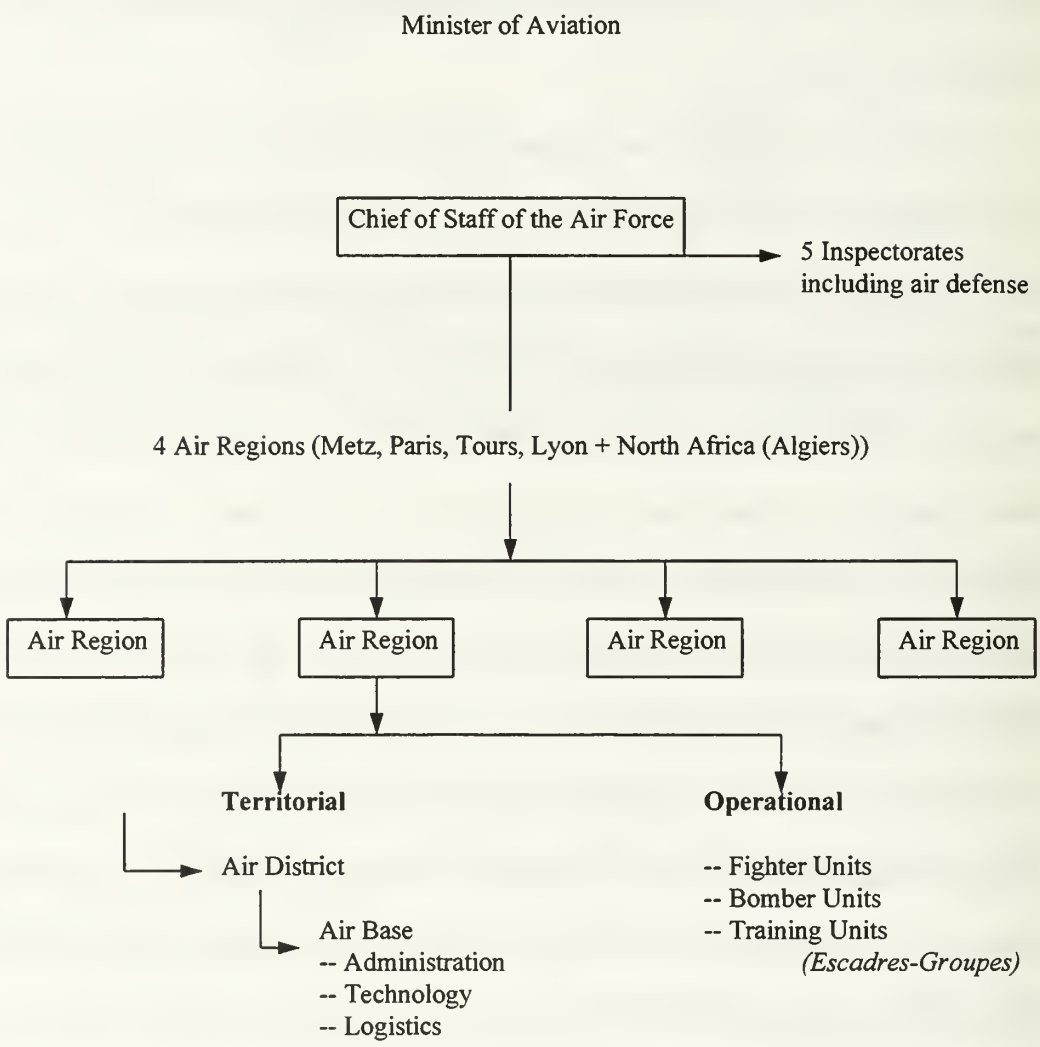

Figure 4: *Armee de l'Air* Peacetime Command Structure, 1938.
Source: Michel Forget, "French and German Army-Air Force Co-operation" in *The Conduct of the Air War in the Second World War*, ed. Horst Boog 1992, p. 447.

In wartime, the Air Force was reorganized to reflect its commitment to Army operations. The Air region commanders retained only their territorial responsibilities. Their duties were to provide logistic and administrative support to Air Force units in accordance with directives from the Commander in Chief of the Air Forces. Operational command and authority was vested in the Army. Within the Air Force, the wartime organization was never coherent as an Air Force commander could not rapidly marshal his air assets for coherent offensive actions. There did exist the possibility for offensive actions because the Commander in Chief of the Air Force retained control of the General reserve forces. The bulk of air units, however, were dispersed to Army units for use at the Army commander's discretion. At the operational level, there was no functional equivalence between the regional Army commander and the Air Force counterpart. There existed no coordinating body such as a command post to organize and coordinate the activities of the Air Force with the Army, or to coordinate between the operations of Air Force units. This produced air operations that could not make any use of its strengths: rapid response, flexibility, and economy of employment. (Robineau 1992, p. 637) Michel Forget writes that:

> its organization enabled it (French Air Force) for strategic air operations, operations which it had neither the time nor the resources to conduct, whereas the structure of co-operation with the ground forces did not enable it to make optimum use of the inherent capabilities of its air forces. (Forget 1992, p. 433)

Figure 5 displays the French's Air Force's wartime organizational structure.

Armee de l'Air Wartime Command Structure, 1938

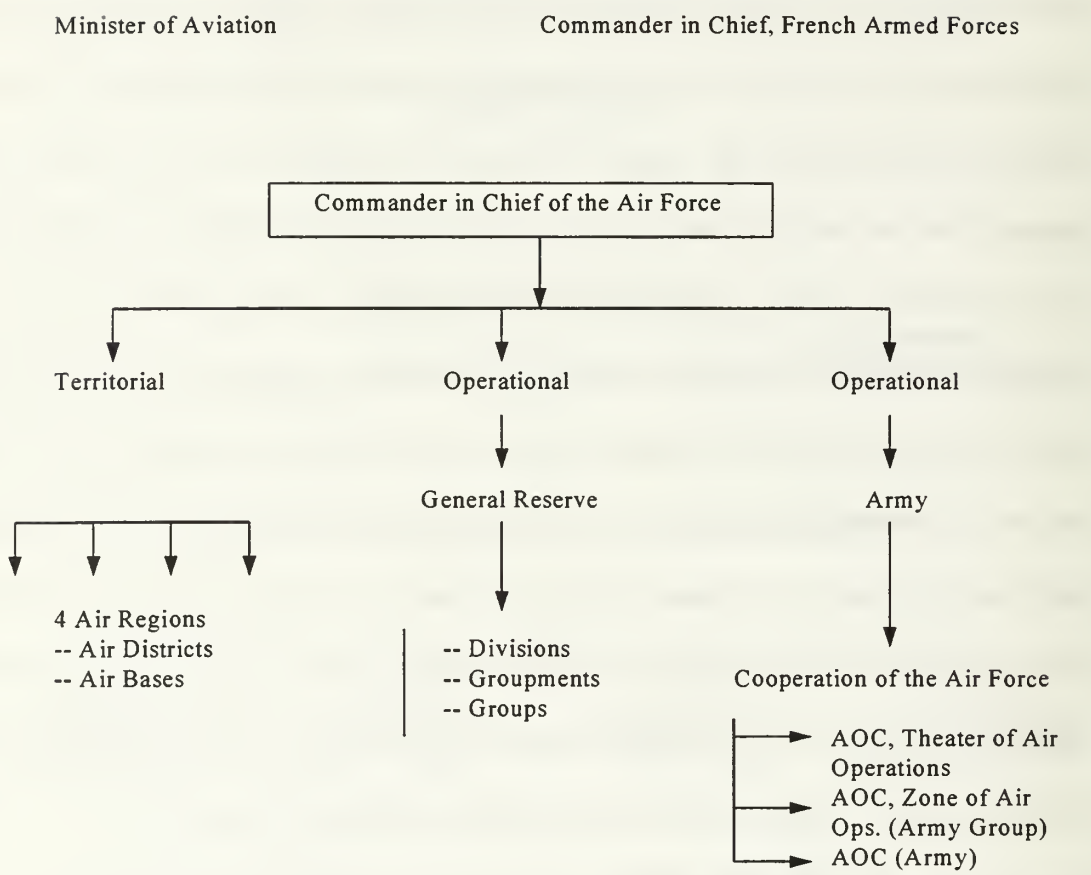

Figure 5. *Armee de l'Air* Wartime Command Structure, 1938.
Source: Michel Forget, "French and German Army-Air Force Co-operation" in *The Conduct of the Air War in the Second World War*, ed. Horst Boog, 1992, p. 447.

From the problems in doctrine, force structure, and organization, as well as the declining aviation industry, French air power prior to World War II was in a state of evolution. The French Air Force was undergoing a transformation into a modern, war-fighting force when it was confronted with an unexpected war. The effectiveness of the

French was inhibited by the events of the previous two decades which created an air force constrained by size and obsolescence, its conditions of employment, and its wartime command structure. The next section will review French employment of air power in May and June of 1940. As a test of reality, the Battle of France would be the severest critic of French air policy since World War I.

E. EVALUATION OF FRENCH AIR POWER EMPLOYMENT

On September 6, 1939, World War II began with the German invasion of Poland. What followed were months and months of "phony war" in which France and her allies were unwilling to intervene with air attacks on Polish soil. *L'Armee de l'Air* spent the time during the phony war augmenting their resources for the upcoming "real" war. This was part of a strategy that decided against offensive air operations on the Eastern Front of Europe because this allied activity might provoke reciprocal enemy operations on the Western Front--operations for which the French Army and Air Force were not wholly prepared. The Air Force, understanding their lack of readiness for war, spent the months from September, 1939 to May, 1940, evaluating new aircraft, conducting training and mobilization exercises, and flying reconnaissance/observation flights over the border areas between France and Germany. (Robineau 1992, pp. 643-646)

French national strategy was based on a defensive premise for operations. It was believed that if France did not start war, then it would never have to suffer through one. To this end, the French Air Force did not conduct hostile air activity until Germany started its invasion of the Low Countries and France. The initial air battle over France did not materialize until May 10, 1940 but it was fought mostly by the German *Luftwaffe*. General Vuillemin, Commander in Chief of the Air Force, issued a directive not to attack

certain enemy regions unless the enemy initiated offensive air operations. This was to support French attempts at conserving and economizing resources, but it also indicated a general fear held by the French leadership of the unpleasant possibilities afforded by an air attack. The French did not want to incur international condemnation for conducting unrestricted air warfare. Moreover, they wanted to incite German reciprocal retaliation for such attacks on French civilians. (Robineau 1992, p. 647) The result of these decisions was that the aerial "knock-out blow" was not sent by either side. For the Germans, this occurred because they were content to maintain the status quo until they were prepared to conduct their land offensives into France. They also employed their air forces for direct support of army ground operations. Air superiority was a necessary prerequisite to the land war and the *Luftwaffe* was tailored for just these types of operations. If there was a decisive "knock-out blow", it was delivered by German armored units. It was understood, however, by both the French Air Force and British Bomber Command, in the event of German offensive air attacks, that the combined allied air forces would conduct reprisal strategic strikes against vulnerable German war assets. (Robineau 1992, p. 647) These included all means of German war production, iron ore facilities, and oil supplies. Although this appears to be sound rationale for the upcoming air battle, the Allied decision was only theoretical as neither France nor Britain possessed sufficient numbers of modern bombers to accomplish this goal.

The offensive beginning the Battle of France started on May 8, 1940. The accompanying air battle started on May 10. German air forces were used in the same manner as they had been used in Poland. (Overy 1980, p. 28) They were connected to the primary battle units and provided the already mobile divisions of German armor and infantry an

advantage over the comparatively static Allied defenses. The *Luftwaffe* fought the air war not only with superior quality air machines, but also with superior numbers. Table 5 shows the order of battle with regard to the quantities and types of aircraft for the Battle of France. Although the chart clearly depicts the numerical superiority of the *Luftwaffe*, it also fails to show that the Allied numbers did not reflect all of the French aircraft available, but not used, for the battle. Not listed in Table 5 are approximately 1,500 other aircraft that the French Air Force had dispersed in other regions of the country.

German and Allied Aircraft at the Beginning of the Battle of France, 1940

	Germany	Allies (Fr. & G.B.)
Single-seat Fighters	850	635
Multi-seat Fighters	200	100
Dive Bombers	280	49
Light Bombers	0	45
Medium Bombers	1,100	414
Reconnaissance	500	300-400

Table 5. German and Allied Aircraft at the Beginning of the Battle of France, 1940. Source: Colonel A. Goutard, *The Battle of France, 1940*, 1959.

When the air battle began, only the *Luftwaffe* was able to protect its own troop movements and rear areas. The Combined French and British air forces fell prey to German air assaults on French Airdromes. Forty-seven were attacked on the opening day of hostili-

ties. The *Luftwaffe* established air supremacy over the critical battle areas allowing German ground units to operate unhindered by air attack.

The combined Allied air forces could do no more than was dictated by the quality of their aircraft, their operational doctrine (which was essentially the French air doctrine), and the force structure that was established for fighting the Germans. The result of Allied air efforts were twofold:

1. The combined British and French air forces were able to conduct operations that attacked German troop movements and the immediate battle areas. They were also able to conduct operations providing support and protecting Allied ground troops from German air attacks; and (Overy 1980, pp. 29-30)
2. The British Bomber Command, stationed in England, pushed for strategic bombing operations against Germany as the Allied ground effort collapsed in late May, 1940. Although the first strategic attacks were conducted on May 15, the French and British could not agree on targeting priorities or determine which targets were the most vulnerable to attack. Subsequent attacks on the German Ruhr region became too sporadic and dispersed to accomplish any substantive results. (Overy 1980, pp. 29-30) The effects attributed to strategic bombing, the diminution of morale and/or the destruction of vital industry, were unnoticed in these air attacks.

F. CONCLUSION

France fell in 45 days. The battle was over so quickly that the result stunned the rest of the world. The contributions of the French Air Force, while not wholly responsible for the battle's loss, can certainly be called inadequate. Barry Posen writes:

> [France] began the war with a miscellaneous collection of largely mediocre fighters. It deployed even fewer bombers. Some of these were obsolete; others were new but ineffective. Overall coordination of air operations was weak. Targets were frequently hit too late or with insufficient strength. The air force often failed to concentrate its fighters over critical point on the battlefield. . . . It does not seem that the air force was decisively defeated, but rather that it was improperly used, and in some ways, scarcely used at all. (Posen 1984, p. 133)

French inability to generate doctrine which reflected the nature of future air battles laid the foundation for organizational, structural, and operational failure. This was accompanied by an aviation industry unable to produce the modern aircraft required for modern warfare and contributed to the ineffective performance of the French Air Force in May and June of 1940.

For the French Air Force, operations in the Battle of France were a result of the government policies and directives of the 1920s and 1930s. These operations were affected significantly by the duality and constraints of French air doctrine; insufficient force structure and organizational character; and the regression of the aviation industry. At the center of French Air Force misfortune in 1940 was the air doctrine that established the basis for the employment of air assets. The fortunes of the Air Force became tied to an Army doctrine and French national strategy which was founded on the premise of a slow, defensive battle. The French Air Force received and operated air assets for fulfilling that premise.

With regards to the humanitarian aspect of French air power doctrine, the totality of French strategy after World War I was incorrectly predicated on a lasting peace. Believing that another continental war was unlikely and horrified by the wasted lives of the First World War, their military doctrine reflected a national strategy committed to defensive operations. This strategy set priorities based upon the threats and opportunities of the international environment. The French created the type of military they believed would be best to meet those threats and opportunities through the formulation of a rational, military doctrine to include the proper roles and dispositions of army, naval and air forces. This was manifested in the force structure, organization, and equipment programs created for each service. For France, the priorities that shaped their air and other military doctrines were:

1. The pacifism following the First World War;
2. A belief that the firepower of modern, massed weapons had eliminated wars of maneuver, thereby giving strategic superiority to defensive strategies and tactics; and
3. A fear that the proposed use of modern air power was essentially inhumane because it targeted civilians.

France created a strategy emphasizing a defensive role for its armed forces. It never wanted to be considered a belligerent state imbued with inhumanity and using military force to bully its neighbors. Based on these concepts, their military strategy emphasized defensive operations to the point that they would not consider offensive roles

for its armed services. This is evidenced not only by French reluctance to conduct strategic air attacks during the Battle of France, but also in formulating air doctrine that supported following the slow, defensive doctrine of the French Army; the protection of friendly ground troops; the protection of friendly air operations conducted for reconnaissance and observation purposes; the purchasing of modern fighters in Plan V, in 1937, for protective roles rather than the purchase of bombers for offensive operations; and a reluctance to initiate offensive air operations unless first resorted to by the enemy air forces. In making this air doctrine, French leadership exhibited humanitarian concern over how it intended to fight its wars. They formulated air doctrine that was part of a "limited" air power policy, never intending to use this power to the detriment of civilians. The French Air Force wanted more latitude to conduct this type of operation but were constrained from doing so by their civilian leadership in the Air Ministry and the government.

VI. CASE STUDY ANALYSIS: THE ROYAL AIR FORCE

A. INTRODUCTION

> *We shall bomb Germany by day as well as by night in ever-increasing measure, casting upon them month by month a heavier discharge of bombs, and making the German people taste and gulp each month a sharper dose of the miseries they have showered upon mankind. Winston Churchill, June 22, 1941* (Bindinian 1976, p. vii)

Winston Churchill's remarks indicate that Great Britain was willing to engage in strategic bombing attacks against Germany in World War II. As historians point out, the British did so with devastating results. They were drawn to this choice for a variety of reasons but the air operations conducted during the Second World War by the Royal Air Force (RAF) formally erased the separation of combatants from non-combatants. RAF bombing attacks were intentionally indiscriminate and inclusive where no person, either in or out of uniform, was spared. Aerial bombardment was considered to be the most heinous act against humanity and its application by the RAF was arguably the most cruel. Of the total tonnage dropped on the European continent, the RAF accounted for 81% of the total dropped on German cities and towns. (Bindinian 1976, p. 3) This indicates that the British somehow abandoned other methods of conducting an air war and concentrated specifically on the targeting of German civilians. The question remains as to how the British arrived at this situation. This chapter seeks to find the answer with an examination of the development of British air power doctrine. The focus of this review will concentrate on the development of air power theory, doctrine, organization, and force structure of the RAF during the inter-war years. This chapter will continue with a study

of how the RAF employed that force in the conduct of World War II in Europe and conclude with an evaluation of the humanitarian aspects of RAF air policy.

B. BRITISH AIR POWER THEORY

British air power theory grew out of the experiences of World War I, when the very young Royal Flying Corps (RFC) flew across the English Channel and landed in Belgium. Since the First World War was primarily an artillery duel, British airplanes were used in ancillary missions supporting artillery batteries and gathering intelligence. Aircraft were vital for observing enemy troop formations and spotting for the next day's artillery barrages. Like their French and German counterparts, the RFC soon conducted other important sorties with their aircraft to include air interdiction, close air support, tactical bombardment of lines of communication, and air superiority missions. (Frizzell 1973, p. 160) These missions grew out of the increasing technological capabilities of developing aircraft which were modified for newer air operations. The birth of British air power theory, as well as the theories of other countries, was established in these missions. Developments in state-of-the-art aircraft technologies and methods of employment also permitted a new type of aerial attack. It was first perpetrated on Britain in 1915 by lighter-than-air military blimps, but later by military airplanes in the summer of 1917.

The German Air Force launched Zeppelin raids on Britain in the latter stages of 1915. Although it was not novel use of dirigibles, it marked the beginning of modern strategic attack through the air. The Zeppelin raids produced success for the Germans--not so much for the amount of casualties sustained by civilians (500), but because the raids kept up to 17,000 officers and enlisted personnel behind in Britain providing aerial defense. This was followed in 1917 by the world's first strategic air attack conducted by

an airplane. German bomber aircraft made the cross-channel journey to England and dropped their ordinance on unsuspecting British citizens. The towns of Folkestone and Shorncliffe were attacked first with 286 civilian casualties. These early missions were followed by astonishing attacks on London using "Gotha" bombers carrying five hundred pound bombs. On June 13, 1917, a squadron of 14 Gotha bombers flew down the Thames River in a diamond formation dropping both high explosive and incendiary bombs. The raid killed or wounded 594 people. A second raid on July 7 produced another 250 casualties. (Smith 1984, p. 17)

These strategic raids produced minor property damage and small casualty lists when compared to the losses of World War II. It should be noted, however, that these attacks affected the British public significantly. The expected public outcry was enormous and politicians reacted swiftly to the call for action. They were not prepared for the emergence of this new style of warfare where the home front was the object of strategic battle. At the request of the War Cabinet, Field Marshall Jan Smuts was assigned to investigate Britain's failure to stop the Gotha raids and to recommend corrective action. Smuts complied by writing two reports; the first recommending the centralization of all air defense efforts; and the second, calling for the creation of an independent air arm to conduct this new type of warfare. Smuts wrote:

> As far as can at present be foreseen, there's absolutely no limit to it's (aircraft's) independent war use. And the day may not be far off when aerial operations with their devastation of enemy lands and destruction of industrial and populous centers on a vast scale may become the principle operations of war, to which the older forms of military and naval operations may become secondary and subordinate. (Smith 1984, p. 18)

In accordance with Smuts' recommendations, Great Britain established both an Air Ministry and an independent Royal Air Force on April 1, 1918. The new RAF consolidated the Royal Flying Corps and the Royal Naval Air Service for combined operations against the German bombing threat. Because Britain concurrently found itself with surplus aircraft, the idea of strategic action in retaliation for the Gotha raids appeared to be a sound proposition.

The first order of business for the newly created Royal Air Force was to choose its commander. This job went to Major-General Sir Hugh Trenchard who, as the commander of the First Brigade, Royal Flying Corps, was enthusiastic about the possibilities afforded by the use of aircraft. Trenchard learned that aircraft had the potential for use as an offensive weapon. Believing that defensive roles did not suit the employment of air power, Trenchard argued that the best defensive method to employ aircraft was to conduct offensive air missions against an enemy's air and industrial assets. Trenchard recognized the potential operations available to aircraft that included both a strategic role as well as the tactical role he was accustomed to commanding during the First World War. In a memo written at the time of his appointment, Trenchard wrote:

> It seems to me unanswerable that if it was possible to hit the German armies in France and at the same time hit the Germans in Germany, this is a better concentration of effort than if we only hit one part of Germany . . . . In my opinion, the British aviation is now strong enough to both beat the German aviation in France and to attack the industrial centers of Germany . . .(Frizzell 1973, p. 163)

To accommodate the RAF's new strategic position, Trenchard recommended two different strategies. The first was to concentrate forces for a sustained and never ending attack on one large population center after another until each center was destroyed. The result

would lead to a dispersal of civilians to other cities and towns. The second strategy was to attack every large civil industrial center as was possible within the capability and range of the air force's aircraft. Because British aircraft were limited in their ability to conduct any type of bombing operation, Trenchard concentrated on the second strategy and found the means to implement it with 10 squadrons of bombers. (Frizzell 1973, p. 164)

In adopting the second strategy, RAF bombing efforts in World War I proved inadequate. The RAF dropped 543 tons of bombs, 323 (59.5%) of which were directed at the civilian population. Bombing operations were not significant because the selected targets were too dispersed and the bomb loads inadequate. Trenchard, however, believed that the strategic attacks provided an additional advantage: the demoralization of the enemy population. Historian Donaldson D. Frizzell writes:

> Trenchard placed great faith on the demoralizing effect of aerial bombardment and estimated that the ratio of the moral effect was on the order of 20 to 1. With the small force that he had available he reasoned it would be prudent to exploit this morale effect over a wide area, taking advantage of the fact that the German people were growing weary of the war and its attendant sacrifices by the summer of 1918. (Frizzell 1973, p. 164)

Trenchard's proclamation of the disparaging effects of bombing on civilian morale became in later years "the foundation-stone of RAF strategic thinking." (Terraine 1992, p. 470) Strategic bombing became understood as the RAF's primary mission and reason for existing. This led to the development of air theories promoting the use of strategic air attack as a sole alternative means of waging war. This was embodied in Prime Minister Stanley Baldwin's famous and oft quoted phrase that "the bombers will always get through," a statement supported by the Gotha bombers over London. This statement later became accepted as dogma by air power advocates. Also accepted, and also abhorred,

was the concept of the "knockout blow." The "knockout blow" was to dominate the discussion of air power development in the decades after World War I. This occurred because the discussion embodied both the air power advocate's belief in the best manner in which to conduct future warfare as well as the air power opponent's overwhelming disdain for an air strategy that purposely targeted civilian population areas.

Along with the development of the RAF and its new strategic role, Britain sought other alternative solutions to prevent the return of Gotha bombers over British soil. The Air Ministry supervised the creation and installation of a sophisticated aerial defense network that included installing anti-aircraft batteries, early warning systems, communication links between observation posts and a centralized air defense command post, search lights, balloon barrages, and alert-strip fighter squadrons for rapid response. The system was clearly the most advanced in the world but was not tested due to Germany's diminished capacity to fight the air war in 1918. After the armistice, the network was dismantled, but the link between the RAF and strategic bombing continued. In the next two decades, strategic bombing became the premise for not only Britain's air tactics and strategy, but also part of its national security strategy.

This section highlighted the establishment of air power theory as it was developed by the RAF in World War I. The original intent of the British air forces deployed to Europe was to conduct operations in support of the army's ground campaigns. This changed drastically as a result of the Gotha bombing raids on London and other British cities. These acts compelled the British government to take both retaliatory and protective measures against Germany. These measures included the creation of an autonomous air force, the RAF, whose initial significant missions were to carry out the aerial bombing

raids on Germany. The RAF later became identified with this type of operation and the concepts that support a strategic bombing attack. This also established the basis for the theory, doctrine and practice of the RAF during the inter-war years. The following section will examine the development of RAF doctrine in the 1920s and 1930s by reviewing the early RAF struggle for existence, the development of the two air strategies that kept RAF autonomy viable, and the switch of strategic priorities before World War II.

C. THE DEVELOPMENT OF BRITISH AIR DOCTRINE

Great Britain's doctrinal development in air power was marked by two different stages in the two decades following the end of World War I. In the 1920s, Britain espoused a counter-offensive air doctrine with emphasis on bomber fleets for strategic attack. The reality of air operations, however, deviated from this doctrine due to successful air operations in the British colonies and the RAF's struggle to remain an autonomous service arm. In the next stage, international events forced Britain to reevaluate its air doctrine and reassess national security priorities. The reassessment force air doctrine to change in order to accommodate new threats to British security. This change produced a force structure and air operations capability favoring aerial defense at the expense of strategic bombing. The RAF Bomber Command did not abandon its primary doctrine and pursued policies to permit its eventual application against Germany. The following sections discuss the dual character of RAF air doctrine as it evolved prior to the Second World War.

1. Post World War I and 1920s Air Power Doctrinal Development

In the latter months of World War I, RAF aerial activity was concentrated on retaliatory attacks over German soil. They were modestly successful but actually caused

fewer casualties and damage than did the Germans with their Gotha raids. These operations caused RAF efforts in support of the Army to diminish as the end of the war approached. In fact, the importance that was attached to independent strategic air attacks led to a more distant relationship between the RAF and the other services. Upon the war's end, the Army and Navy were happy to be disassociated with any efforts to more fully exploit interservice cooperation--the Royal Flying Corps' original purpose at the beginning of World War I. This occurred partly because of the RAF's new strategic role but also because a military innovation in mapping allowed maneuver to be reintroduced to the Western front. Air forces have always been touted as an attack method where the element of surprise can be used for tactical or strategic advantage. With the creation of an autonomous RAF, aircraft seemingly became the only weapon capable of returning maneuver to warfare but they were now being used for independent missions. Military innovations in cartography, however, provided ground forces with charts that allowed precision, as well as surprise, to be a part of artillery attacks.

Historian John Terraine writes that until 1917, maps used for the First World War were not squared as we understand them to be today. Artillery barrages were often aimed at landscape rather than at coordinates. It was difficult to orchestrate the simultaneous firing of different artillery batteries, separated by miles, at the same target location. All artillery firing had to be registered through command channels and corrected based upon previous firing results relayed by reconnaissance aircraft. With new maps using targeting grids and dispensed *en masse,* not only to all artillery units, but to air spotting units as well, it was possible to concentrate fire on single targets from multiple batteries with precision. The concentrated and orchestrated artillery fire provided an element of sur-

prise for exploitation by infantry forces. Infantry units were now able to be protected by advancing artillery barrages. Crucial to this process were the air spotting units that also used the squared maps and new wireless communication radios providing instantaneous feed back to artillery commanders as to the location and effect of their bombardment. With this novel development at the end of World War I, army commanders did not feel compelled to innovate with regard to the future use of aircraft for joint army-air force cooperation. (Terraine 1992, pp. 467-469) The continued development of the RAF would need to find justification elsewhere, especially with the growing pacifist tendencies of the British public after the war.

In the decade following the end of the First World War, the European countries and the United States believed that they may have fought the last war. All of the participants in World War I demobilized their armed forces and this led to simultaneous declines in the importance attached to maintaining anything but a minimum force structure for defense in all of the armed forces. The RAF was reduced from a total of 400 operational and training squadrons to 12 with a combined officer and enlisted force of 28,000 personnel. (Frizzell 1973, p. 165) RAF leadership focused on maintaining the proficiency of a small air force that stressed the importance of men over aircraft. Emphasis was placed on training, education, and professionalism in order to enhance the survival of the service. Without a threat of war, the RAF needed to justify itself as a unitary service arm, equal in status to the Royal Army and Navy. This would prove difficult in the aftermath of World War I where nations, tired from years of fighting, became weary of supporting the means to conduct more fighting.

Demobilization diminished Britain's continental commitment but the requirements for national defense and colonial policing still existed. The British had to find the means to preserve the empire while simultaneously protecting the home islands. British leadership accepted as a military strategy the development of a deterrent posture in order to dissuade potential enemies from attacking Britain or any of its colonial possessions. This required a strong military presence along with the reliance on allies for mutual protection. The development of air power seemed well suited for this task because of what people believed about air power's ability to instill fear in potential enemies. The idea of aerial bombardment was so abhorrent that any state possessing the destructive capability promised by bomber aircraft could forestall the outbreak of a war. Air power opponents, however, thought that Britain would be able to provide for the security of the home islands and colonial possessions in the same manner as it had in the past--using the Royal Navy and elements of the Royal Army. There was apparently no place for an air force to participate.

In was in this environment that the RAF had to forge its future in the 1920s. The RAF had to determine its proper role in national defense and sell it to the British government. This was accomplished through the leadership of Major-General Trenchard and the Air Ministry bureaucrats which refused to bow to interservice rivalry or outside political pressure. It was paramount for the RAF to stress its strategic mission in the context of the new deterrent national strategy, and to offer new roles for the RAF that appealed to the civilians in government. Trenchard was appointed as Chief of the Air Staff in February, 1919, and found three formidable opponents to the continued existence of the RAF. These were the War Office, the Admiralty, and economy-minded politicians. (Frizzell

1973, p. 165) The War Office and Admiralty wanted both the air assets and money appropriated for the RAF. Both services argued that air forces, as an integrated part of an army or navy, could fulfill these roles without the expense of an Air Ministry and a separate air arm. The politicians wanted the elimination of the autonomous air force in order to save money.

In rebuttal, air service advocates replied that an air arm fights in a separate medium of warfare that is indivisible, like the earth or the ocean. Air operations, therefore, require the specialized techniques and skills regardless if over land or sea. Since these skills were fundamentally different than those used by an army or navy, the type of warfare they engaged in was also fundamentally different, and that required a separate service arm. While stressing the unique nature of air warfare, the RAF also promoted itself using an economic argument for defense of the home islands. They fought to assume established army and naval roles by offering the RAF as a reasonable alternative to an expensive sea-going fleet or to a large standing army. This argument pleased the cost-conscious politicians but was detrimental to the other services. Finally, air power advocates had to find the means to protect the Air Ministry from being dismantled even if the RAF survived through demobilization. The Air Ministry was deemed vital to air power development because it controlled all aspects of military aircraft production. If the RAF was to fulfill its intended role as a strategic attack service for national defense, the Air Ministry was required to survive to ensure the development of large bomber squadrons. This was essential for the fulfillment of RAF doctrinal preferences.

In the 1920s, the RAF found itself continually under pressure to justify itself as required service arm. It was successful in doing so by adhering to the RAF's primary

doctrine of strategic attack and by showing the successful application of the "Air Control" concept in their colonial military operations. The doctrine of strategic attack was based on the concept of the "knock-out blow." (Wark 1992, p. 515) This concept was based on the belief that Great Britain was no longer invulnerable to attack because of the advent of air power. The only means to prevent the reoccurrence of the World War I Gotha raids was to create a bomber force of sufficient offensive strength to deter potential enemies. The number of necessary bombers was based on the One Power Standard--a standard based on parity or superiority in numbers of aircraft of any potential enemy. (Smith 1984, p. 32) In the event that Britain's bomber deterrent failed, RAF bomber fleets would immediately fly to enemy industrial and transportation centers and deliver a "knock-out blow" designed to directly attack the means of conducting war. This would enable the swift end of the conflict that was about to be fought on the ground.

The reason that the "knock-out blow" was accepted as a form of military strategy was because the memory of World War I land campaigns still stimulated general disgust over the high cost of human lives. Air power was being hailed as the means to transcend the horrors of the First World War by promising to deliver a swift, devastating jolt to an enemy. With the public hysteria attached to the concept of aerial bombardment, the idea of air power as a deterrent made sense. The fundamental premise of the "knock-out blow" concept was that there is no defense against an air attack except a greater, more destructive, air counterattack. A state's fear of aerial retaliation would restrain its neighbors from any use of armed force where the "knock-out blow" might be delivered.

The "Air Control" concept was the brainchild of Major-General Trenchard whereby squadrons of aircraft were used to exert military control of a land area instead of

British infantry columns. (Frizzell 1973, p. 165) This substitution of air power for land forces found success in the far reaches of he British Empire, most notably in colonial Iraq. In command of the Iraqi air operations was Air Vice Marshall Sir John Salmond. Using an unconventional mixture of armored cars and airplanes, he was able to remove Turkish irregulars from Iraqi territory by refusing enemy soldiers any respite from attack or rest from pursuit. Historian Malcolm Smith writes:

> The success of Air Control lay in the fact that retaliation was virtually impossible. The natural shelter of deserts and mountains, which had made the operations of the Army so drawn out, no longer provided safety for the rebels. Punishment, by the new method, could be meted out speedily and the trouble thus kept localized. Air Control amounted an inverted blockade, keeping villagers from their crops and stores of grain, or keeping the nomads on the run and away from their livestock . . . . The speed and unpredictability of attack . . . was the key to the success of Air Control. (Smith 1984, p. 29)

Also noteworthy was the deceased cost of colonial operations. The Air Control operations saved both lives and money in the long term--far below the cost incurred previously using only the British Army. Malcolm Smith again notes:

> Salmond's operations in Iraq cost just £8m., against the War Office estimates for Army operations there of £20m., and by 1930 the cost of policing Iraq had fallen to £650,000 per annum. The Army lost 300 dead in the Afghan war of 1919, and a further 566 in the cholera epidemic that struck the troops. By way of comparison, the RAF lost only three dead in the Waziristan uprising of 1923, In Aden, where the RAF assumed control in 1928, the border dispute with Yemen was ended by military operations that cost the life of one British officer, one aircraft lost in a sandstorm, and 8,567 [pounds] . . .(Smith 1984, p. 30)

The result of Trenchard's Air Control policies was that the RAF prioritized its air operations into either the strategic counteroffensive role or the colonial policing role. Doctrine, however, did not evolve much past the strategic conceptions of aerial bombing.

This is curious because the bomber fleets supporting this doctrine were based, like the French air doctrine in this period, upon the best guesses of the political and military leadership as to how the next war would be fought and the best use of an air force to pursue victory. Strategic bombing had not yet met the test of reality as did the colonial policing air operations. Air Control was a reality that worked but the RAF did not draw any effective conclusions from the experience. This occurred because the pursuit of a sufficient strategic attack force was diminished as air assets were used in the colonies at the expense of air operations in Britain. British political and military leadership were very pleased with the results of the colonial air operations but blinded to deficiencies with the application of the Air Control policies to other conflicts. Lessons that the RAF should have learned are:

1. There were no opposition air forces in the conduct of the Air Control colonial policies. Therefore, there was no way to know if the conduct of these operations on a more substantive foe would produce the same levels of success with regard to combat effectiveness;
2. The cost effective measures of the Air Control policy may not have been present in a war with an opponent possessing the same quality air force. Failure to recognize this would lead to a failure to realize the attritional nature of conducting an air war. Losses of both men and material will stop air operations without sufficient reserves;
3. The combination of the Air Control policies and the strategic attack role assigned to the RAF bred a false sense of mission success and there-

fore, organizational success, because the RAF seemingly provided air policies that maintained the traditional priorities of British foreign policy in a cost effective manner. The RAF was viewed as allowing flexibility and rapid response to Britain's national defense needs both at home and abroad. The reality was that the RAF force structure and operational policies that emerged at the end of the 1920s was woefully unprepared for the coming decade and the next war.

As the 1920s ended and the new decade began, the RAF had long forgotten its roots in army-air force cooperation but could boast of its strategic role in national defense. The reality was that it was only prepared to execute its Air Control operations. With the beginning of the 1930s, the international environment began to change and threats to both peace and Britain's security began to surface. The rise of Nazi Germany caused Britain to reassess its national security priorities. As the reality of the German air threat became apparent, the RAF and Air Ministry also reassessed its priorities and opted for the build-up of bomber aircraft. A study of the air wars conducted in China and Spain should have reversed the selection of this policy as well as revised RAF doctrinal bias for bombing, but this did not occur. Only at the eleventh hour did Britain embark on aerial rearmament policies that more accurately reflected Britain's strategic position and defense requirements.

2. RAF Doctrinal Development in the 1930s.

In the early 1930s, the RAF continued its policies of developing a quantitatively superior air force, based on the One Power Standard, while conducting Air Control duties

in the colonies. Events in China in 1932, however, started the process of reassessment for Britain. The aerial bombing of Shanghai seemed to confirm the theories of air advocates concerning the strategic knock-out blow. Of course, air power opponents saw the act as an outrage against humanity and justification for the elimination of this type of warfare. In 1936, Spain fell into civil war and again, air power seemingly proved its worth. Republican air forces fought Franco's Nationalists air forces which were aided by the *Luftwaffe* Condor Legion in a losing battle. As Guernica, Barcelona, and Madrid felt the impact of air attacks, the air staffs of many countries failed to see the true lessons in the conduct of this style of warfare. What occurred in both the Spanish Civil War and Shanghai was a repudiation of the knock-out blow theory. Shanghai was bombed in 1932 but in 1941, the Japanese were no closer to defeating the Chinese than they were in 1932. The knock-out blow was not decisive. In Spain, the world was able to see newsreels covering the air battles but the film did not reveal that the use of air power in Spain was a long way from fulfilling the promised devastation of air attacks or the potential to end war swiftly as predicted by air power advocates. John Terraine writes:

> Madrid was beleaguered city for almost three years, and under some degree of air attack for most of the time; Barcelona was also heavily attacked, the attacks in March 1938 causing casualties not much different from Britain's in the whole First World War. The civilian deaths in the entire Spanish Civil War amounted to about 14,000 in the Republican area, and about another 1,000 in the Nationalist zone--the total is roughly 3 percent of the full total of people killed in the war. (Terraine 1992, p. 472)

There was no knock-out blow and both the Republican and Nationalist air forces used air power in a contradictory manner compared to the RAF. Both Republican and Nationalist air assets were used primarily as part of a joint army-air force cooperative effort. In

Britain, Chief of the Air Staff, Air Chief Marshall Sir Cyril Newall stated that this type of bombing was a misuse of the air weapon. (Terraine 1992, p. 473)

The basis for Newall's statement lies in a 1921 RAF study that concluded that the French Air Force, as it was then constituted, could make London uninhabitable by dropping 100 tons of bombs per day. This fantastic, but wholly unrealistic, version of the future air war led the RAF to believe that punitive air warfare was the key to protecting the country. This was accepted in most quarters of the British civilian and military leadership but was challenged as the conflicts of the 1930s made it clear that Britain may not be able to protect both the home islands and its colonial possessions. As the British rearmament began in the 1930s, the RAF and Air Ministry continued to push for air policies based upon numerical parity (the One Power Standard) with an emphasis on protecting the home islands. This fulfilled the RAF desire for the continued development of bomber aircraft for the conduct of a counter offensive air attack, but little else. Pursuit of parity became too onerous to continue in light of its many undesirable consequences.

Parity caused many difficulties for the aircraft industry, since demand for production was based in changing intelligence estimates of German intentions. Production eventually became piecemeal with no effective long range planning. This allowed the aircraft industry to produce substantial numbers of airplanes, but many were of inferior quality to those operated by Germany. It was also very expensive as the requirements for parity began to cut into the budgets of the Army and Navy. For example, the rearmament plan for 1934 was to cost £20 million, but by the end of 1937, further commitment to parity was estimated to cost £820 million. British leadership finally concluded that the

continued development of the air forces began to have dire economic consequences. (Smith 1984, pp. 315-317)

Britain's solution to the problems caused by the parity policy was to reassess the basic premises of air policy and theory as put forth by the RAF and Air Ministry. In doing so, British leadership also found themselves debating about the nature of the next war, the best manner for Britain to wage it, and whether or not the economic resources existed to win. By the outset of World War II, this debate determined the manner that the RAF would be constituted to best support British defense priorities. The debate concluded with the following assessment of the upcoming war: In the next European conflict, Britain would have to be able to survive a knock-out blow, create the economic potential for the conduct of a long, drawn out campaign, and project the image of a solidified nation--stable and united in the political, economic, and social arenas against any enemy. (Posen 1984, p. 153) In order to accomplish these objectives, a reassessment of RAF strategic capabilities and mission priorities was in order.

In 1937, Sir Thomas Inskip was given the job of determining the appropriate balance between rearmament and economic capability needed to meet British defense requirements. To accomplish this job, Inskip prioritized defense responsibilities based on the most immediate threat to Great Britain. He determined that it was imperative that Britain survive an attack from the air in the beginning of the next war. Inskip further questioned the validity of RAF strategic bombing doctrine and recommended that the RAF shift its emphasis toward air defense measures and that the Air Ministry shift priority to the production of fighters at the expense of bombers. (Wark 1992, p. 521) Fighters were essential to Inskip's proposals because he realized that in comparison to

Germany, Great Britain possessed a serious deficiency in providing adequate air defense measures to ward off a knock-out blow. This shift in views by the civilian leadership of the government was resisted by the RAF who viewed the production of fighters as a detriment to its doctrinal bias for more bomber aircraft. This shift in aircraft and doctrinal priority seemed illogical from the standpoint of RAF thinking but the government made its choice with the knowledge that a future war with Germany might occur. Barry Posen writes:

> Early civilian support for the RAF's offensive doctrine stemmed from a diffuse hope that it would deter German aggression. Civilians became more concerned in 1937 about the implications of the doctrine for Britain's real safety in a real war. By this criteria they found it (RAF bombing doctrine) wanting. (Posen 1984, p. 161)

Evidence exists that demonstrates that this was the proper course for the government to follow. There are two examples indicating that the RAF knew little of what was required to conduct sustained bombing efforts in a general war or that the aircrews possessed the requisite skill levels and equipment to be successful. The first example deals with the ability of the RAF to accurately plan and forecast their capabilities against existing targeting problems. The RAF performed no testing or war gaming of its operational doctrine until 1937. When the Air Staff convened to determine the best manner in which to bomb Germany they discovered that no plans existed. There was no idea as to which targets required bombing nor did the Air Staff have a notion as to the priority of targets. Barry Posen writes that "[t]hey knew nothing of finding or hitting the target, or of weapons effectiveness against different targets." (Posen 1984, p. 161) It was not until after the German occupation of Austria that the RAF constituted a bombing plan of the Third

Reich. This would have been good news except for the fact that the plans concluded incredible results with no basis in reality. The Bomber Command determined that they could eliminate German industry by bombing and destroying 19 power plants and 26 coking plants. The RAF would require 3000 sorties to accomplish this plan with a loss of 176 aircraft. (Terraine 1992, p. 473) What is most astonishing is the fact that the bombers assigned to this task could never be considered a modern strategic bombing force. Table 6 depicts the Bomber Command's operational assets in 1938. The asterisked aircraft were known to be obsolete in 1938 and the Bristol Blenheims were incapable of long range operations necessary to attack Germany.

RAF Bomber Command's Operational Aircraft, 1938

	Aircraft Type	Operational Squadrons
*	Fairey Battles	17
	Bristol Blenheims	16
	Armstrong Whitworth Whitleys	9
*	Handley Page Harrows	5
*	Vickers Wellesleys	2

Table 6. RAF Bomber Command's Operational Aircraft, 1938
Source: John Terraine, "Theory and Practice of Air War: The RAF" in *The Conduct of the Air War in the Second World War*, ed. Horst Boog 1992.

The second example supporting the decision to develop new aerial defense priorities also deals with the RAF war planning efforts. Air Officer Commanding-in-Chief, Bomber Command, Air Chief Marshall Sir Edgar Ludlow-Hewitt, believed that war planning was an exercise without "operational efficiency." (Terraine 1992, p. 474) When he arrived at his post in 1937, he investigated the efficiency of the Bomber Command with regard to completing its wartime mission. He accomplished the same task again in 1939. The results of his investigation are startling. Ludlow-Hewitt discovered that the Bomber Command was deficient in these training areas: navigation, crew force, aircraft equipment, and gunnery.

Regarding navigation, Ludlow-Hewitt identified the Bomber Command as daylight capable only. In 1937, the bomber force flew 130,000 hours of daytime flying as opposed to 9,000 hours at night. It was not able to find targets in all weather conditions. Ludlow-Hewitt described it as a "fair-weather force" and "relatively useless" since navigation is paramount to any bombing operation. (Terraine 1992, p. 474) The crew force was deemed inadequate when compared to the standards and practices of all weather flying as performed by the civil airlines. RAF bomber pilots had little ability to fly through instrument conditions such as thick clouds, fog, ice, snow, or rain. This again impacted the bomber's ability to get to a target if limited by the ability of the pilot. Also, these investigations found that radios were not installed except in the aircraft of the formation leaders. Practice with other navigational and communication aids was virtually nonexistent. Finally, aerial gunnery was found to be dismal. Ludlow-Hewitt wrote that:

> As things are at present, the gunners have no real confidence in the ability to use their equipment efficiently in war, and captains and crews have, I

> fear, little confidence in the ability of gunners to defend them against destruction by enemy aircraft. (Terraine 1992, p. 474)

In 1939, Ludlow-Hewitt's second report concluded that the RAF Bomber Command was unprepared for war. It was unable to operate except in fair weather, daytime conditions, and it was extremely vulnerable to attack both in the air and on the ground. The result of these reports and the obvious operational deficiency of the Bomber Command was that the doctrine of strategic attack was dropped without being attempted. Emphasis was now placed on upgrading the aerial defense network of integrated radar and communication posts as well as the production of fighter aircraft to beat back attacking enemy bombers.

The changing of priorities with regard to abandoning RAF bombing doctrine was a necessary step for the British government to take. Because the Bomber Command was incapable and unprepared to fulfill its deterrent doctrine, the British were left without a credible defense against a knock-out blow. Britain's vulnerability to air attack left the government with only three alternatives: to develop a highly trained and credible bomber force; to sign international treaties banning the use of bombers in war; or to:

> challenge the air theory directly as the cabinet did in late 1937 and 1938, and put the view that an effective deterrent against air attack was in fact possible, using recent developments in fighter design and aircraft detection technology. (Smith 1984, p. 311)

3. Synopsis

This section covered the development of doctrine within the RAF during the inter-war years and separated two distinct time periods for analysis: the 1920s and 30s. The RAF is the world's oldest established air force. It was created for retaliatory attacks against Germany in World War I. This led to the creation of a strategic attack doctrine

that the RAF pursued almost to the exclusion of other viable air force roles and missions. This was done in order to preserve service autonomy in the wake of the military demobilization following the First World War. The RAF also pursued an Air Control policy in the colonial territories of Great Britain which proved to be a highly effective way to police remote areas. In the pursuit of the Air Control policy, RAF doctrine stagnated until the changing international environment for forced the British government to reevaluate its defense posture. Both the civilian leadership and the Air Staff discovered that the RAF Bomber Command was unable to fulfill its strategic mission nor provide adequately for the defense against the famous knock-out blow. In order to counter the threat from strategic attack, the British wisely changed the direction of air policies away from bomber fleets and toward an integrated air defense system utilizing advanced radar systems, communication relays, and fighter squadrons able to interdict incoming enemy aircraft. In doing so, the RAF went against its doctrinal preferences but found its Fighter Command to be an integral part of the victory over Germany in World War II.

Note that the change in emphasis from bomber production to fighters came in 1937. Although this shift in emphasis permitted the RAF Fighter Command to successfully defeat the *Luftwaffe* in the Battle of Britain, the production of heavy bombers continued concurrently with the production of fighter aircraft. The heavy bombers ordered in the three years prior to Inskip's reassessment of British defense priorities, and those afterward in reduced numbers, were integrated into the air service by 1942 and constituted the mainstay of British bombing efforts for the remainder of the war. Although the civilian leadership correctly forced the RAF away from its doctrinal preferences for bombing, it did not diminish the RAF's proclivity for this type of air operation.

The validity of RAF strategic bombing doctrine would be tested in the skies over Europe. For this ultimate task, the RAF organization and force structure reflected the demands of doctrine except for the departure forced by Sir Thomas Inskip. The next section will review RAF organization and force structure in the 1920s and 1930s. This is to show the composition of the air forces as it related to the development of doctrine during the interwar years.

D. RAF ORGANIZATION AND FORCE STRUCTURE

RAF organization and force structure aptly represent the advantages and disadvantages of the RAF as it entered World War II. RAF organization, headed by outstanding senior leadership, was able to develop air professionals capable of solving the problems of air warfare in the Second World War. The organization also permitted the British to conduct a general air strategy, encompassing all of Richard Overy's recurrent themes in the development of air power theory. This turned out to be their best asset, as manifested in the British aerial defense system, because it permitted operational flexibility. A distinct disadvantage of the RAF at the outset of World War II was its inability to create an appropriate force structure to meet the German threat. Force structure requirements were beset by many problems, most of which were enhanced by the poor state of the aircraft industry, the politics of maintaining air parity with the German *Luftwaffe*, and the lack of trained personnel to suitably conduct the air war during the Battle of Britain. This section will review RAF organization and force structure as a necessary prerequisite for understanding how the British employed their air arm during the Second World War.

The original conception of RAF organization was based upon the current (World War I era) Royal Army. Unlike its French counterpart, however, the RAF was given the

same status as the Army and Navy but could not avoid the same arguments encountered by the French as to the proper role, organization, and subordination, of the new British air forces. Consequently, there was the same heated debate concerning the autonomy of the RAF but the emergence of this new unitary service did not create a dual organizational setup. The character of the RAF with regard to operational control of assets was the same in peace and war. RAF leadership was not subordinate to the commanders or missions of the other services and stood alone, but equal, in the development of military strategy for the execution and support of national strategy objectives. This autonomy allowed the RAF to remain flexible in its pursuit of suitable roles and missions.

RAF independence should have fostered the development of two aspects concerning the application of air power: independent air missions such as strategic bombing; and the conduct of cooperative operations in support of both the army and navy. Unfortunately, the RAF never fully embraced cooperative ventures with either service outside of colonial air operations. RAF doctrinal development emphasized the autonomous aspects of air power and paid scant attention to its cooperative uses with the other service arms. This resulted in the naval aviation assets of the RAF being returned to the Royal Navy in 1937 as well as three distinct methodologies for the conduct of a future war--one each proposed by the Royal Army, Navy, and Air Force. (Smith 1984, p. 102) Joint training with the Army was not considered important by either service prior to 1938 because neither the Army nor the RAF considered the real possibility of war and the necessity of bilateral operations. (Probert 1992, p. 683) With the emphasis on the strategic attack as an independent means of waging war, the RAF developed as a bomber force and supporter of colonial air policy. RAF organization reflected this emphasis until 1936.

Prior to 1936, the RAF required only one headquarters with a single chief of staff subordinate to the civilian leadership of the Air Ministry. The headquarters was titled the Air Defense of Great Britain. The Air Ministry was headed by a Secretary of State for Air--a politician and cabinet member, who worked closely with the military Chief of the Air Staff and a council of senior RAF leaders to formulate policy and planning. (Probert 1992, pp. 684-685) After 1936, the RAF was sub-divided into three functional commands: Bomber, Fighter, and Coastal Commands. The Bomber Command was also divided into groups based upon the type of bomber flown in that organization, classified as either heavy, medium, or light. The remaining two commands were given specific operational areas. The Bomber, Fighter, and Coastal commands were setup for the defense of the home islands and were supported by other RAF organizations and commands. These included the Balloon, Training, Maintenance, and Reserve Commands. In the British colonies, all air operations were commanded by a single headquarters, undivided by functional differences, and representative of a specific geographical area.

The organizational setup of the RAF provided advantages allowing the British to employ all aspects of a general air strategy, even if they did not choose to do so. The separate functional commands permitted the conduct of aerial defense missions, strategic bombing, naval support operations through the Royal Naval Air Service, and finally in the latter stages of World War II, cooperative operations in support of the Army. Inherent in RAF organization was an ability to be operationally flexible because of a centralized command system that controlled all combat assets maximizing military efficiency. The operational flexibility made efficient use of RAF assets and exploited the best characteristics of the air weapon: surprise, mass, and economy of force.

The best illustration of this is the air defense network during the Battle of Britain. Using the newly developed early warning radars, the British had to devise a means of integrating radar information with their squadrons of interceptor aircraft. An efficient command and control system was necessary. The system had to be logical but simple, and above all else, effective. The development of the system is descibed as follows:

> It was necessary to devise efficient means to translate the information detected by the radar into meaningful directions for the interceptors and to deliver instructions to the flyers soon enough for them to launch, to climb to altitude, and to make the interception before the bombers had reached their targets. This was no simple task. First, the initial generation of radar sets was so bothered by ground clutter that the equipment was of little use over land. Thus, once the incoming bombers passed the coast line, additional tracking information would have to be gathered . . . . This entailed the creation of a vast ground observer corps and the associated complex communication net. Second, it was then necessary to devise a system for taking the information gathered from the various sources and collating it into a usable form. Finally, it was necessary to create the command structure and the technology for delivering the directions to the fighter force, both while it was on the ground alert and after it was on the ground. (Buell, et al, 1989, pp. 60-61)

Although the system description seems quite easy to understand, the entire early warning network required astute and active management at every level of command. Leadership and professionalism were key to making it work. Mistakes at one level would affect the decisions made in other levels of the system. Although one might think that the system's success rested on the pilots and maintenance personnel of the fighter squadrons, without each link in the network functioning properly, the goal of defending British skies could be lost by what occurred on the ground within the network. The actual air engagement was important but became the last link in a chain of information and decisions rapidly relayed from one RAF command level to another.

The early warning radar information would be received at stations along the southeastern part of England. Data concerning altitude, possible type, and numbers of incoming enemy aircraft would be relayed to different command posts at the sector (geographic) headquarters, Air Group headquarters, and Fighter Command. Incoming enemy aircraft as well as intercepting friendly forces were plotted on a horizontal positioning board that displayed the probable order of battle. This system permitted Fighter Command to be informed of the latest progress of an air battle and allowed the Air Group to decide which air assets, and in what numbers and type, were necessary to intercept the attackers. This was based partly on the geographic sector that the enemy's aircraft infiltrated the British air space and also the type of attacking aircraft. Squadrons of British aircraft would be alerted through headquarters and deployed immediately in the path of incoming enemy airplanes. Once airborne, friendly aircraft were given further vectoring instructions until pilots obtained visual contact with their opponents and engaged in battle. After the air battle ended, the sector controllers would redirect British aircraft back to their bases.

Regarding the leadership and professionalism of the RAF senior leadership, they were the glue that held all of this together. Because of the early establishment of the air arm, RAF commanders not only possessed previous combat leadership but also were able to focus their military careers on mastering their operational craft. As such, RAF leadership was well prepared to deal with the complexities of a modern air war via their training, education, and professional development. Air Chief Marshall Dowding, for instance, leader of the RAF Fighter Command during the Second World War, earned his wings prior to World War I and subsequently commanded both an air squadron and wing in

combat. (Buell, et al., 1989, p. 66) In accordance with Trenchard's initial policies prioritizing the training and education of RAF personnel, Dowding and other RAF officers became well schooled in the application of air power. (Frizzell 1989, p. 165) The development and mastery of the operational art were stressed so as to develop future leaders with the capacity to lead. RAF staff colleges and colonial assignments developed future British air leaders. These men learned the nuances of their profession and were ready for the difficult operations of World War II.

This can be illustrated by looking at Dowding's profile. His education and training led him to specific conclusions as to the future conduct of air warfare. While an advocate of the RAF strategic attack doctrine, he believed that the bombers may not always get through if they do not not have a secure base to operate from. This would require some means of providing aerial defense. The problem was how to adequately intercept enemy aircraft with no prior knowledge of their infiltration routes to the British home islands. (Buell, et al., 1989, pp. 59-62)

As a member of the Air Staff in charge of Research and Development, Dowding was able to see a demonstration of the "Chain Home" radar system that eventually became the backbone of RAF resistance in the Battle of Britain. Seeing the radar as a method of securing RAF air bases, Dowding recommended to the Air Ministry in 1935 that they should invest in the development of this radar system without the benefit of a full testing cycle. Dowding's recommendation was accepted and proved to be instrumental to the aerial defense of Great Britain. Countries that possessed this system could eliminate the previous premise of air operations--that aircraft could operate in almost all areas of the sky without any fear of opposition--that "the bomber will always get

through." As for Dowding's discovery on the usefulness of radar systems, his professional judgment has been vindicated repeatedly since the war. Radar systems are now fundamental to all modern air defense systems as well as standard equipment in modern fighter aircraft. (Buell, et al., 1989, p. 59)

RAF organizational setup proved to be a strong point of British air operations. An established chain of command and professional leadership permitted the RAF to meet the demands of rearmament but also the requirements for war. Unfortunately, RAF force structure did not keep pace with the rapid rearmament policies of the 1930s. In September 1939, the RAF found themselves with inadequately trained aircrew and too few modern aircraft when compared to the German Luftwaffe.

RAF force structure had always been based on Lord Trenchard's policy dictum that the number of bombers should always exceed fighters by 2 to 1 ratio. This was to stress the RAF's strategic bombing role for the next war. Even so, the RAF never met that goal. In 1930, the RAF was still oriented toward colonial air operations and in 1931, was ten squadrons short of its goal of 52 for home island defense. As the German threat became more apparent, the Air Ministry and RAF leadership pushed for the expansion of the force structure. They found their goals limited, however, by the following factors:

1. The poor state of the British aircraft industry;
2. Capricious rearmament plans based on the parity policy; and
3. A lack of quality trained personnel or skilled aviation industry workers.

With the de-mobilization after World War I, the British aviation industry also downsized in the same manner as did the French industry. Only a small coterie of family businesses produced all of the RAF aircraft. Modern mass production methods were uncommon. In 1918, there were 46 producers of RAF airframes in the industry. This shrunk to 20 in 1924, 12 of which were small firms. In engine production, only 4 businesses existed after the depression with only 2 (Rolls Royce and Bristol) able to expand their operations to meet the demands of RAF rearmament. (Smith 1984, pp. 247-249) The aviation industry was not standardized nor rationalized to the point that it could handle more than the usual production schedules determined in peacetime.

British rearmament in the 1930s was marked buy a series of production "schemes"--short term military production requests for more modern aircraft. These schemes initially overwhelmed the aviation industry's capacity to produce quality aircraft in large numbers. In fact, short term production orders by the Air Ministry caused aviation corporations to produce many obsolete aircraft, solely to fill orders requested by the RAF and to maintain the labor force in the aviation industry during the depression. (Divine 1966, p. 195) This had a two-fold effect. First the RAF received excessive obsolete aircraft for which there was no operational use in 1939. Second, because of the qualitative superiority of enemy aircraft, using these obsolete airplanes in combat wasted not only the lives of the aircrew, but also the on board resources such as fuel, ammunition, and aircraft components. An excellent example of this is the Fairey Battle aircraft. Author David Divine writes:

> The Battle was, by and large, an unwanted aircraft. As early as 1933, the Deputy Chief of the Air Staff declared that it would not make a high

> performance bomber. Faireys, however, were tooled up and an order for 655 (approximately equal to the total of the whole air force at Trenchard's retirement) was placed. A further 500 were ordered from Austin's Shadow Factory which had little to do. When eventually Scheme L arrived and the Ministry still had not a suitable aircraft to put into production, 363 more were ordered from Austin's and a few months later, 200 more from Fairey's. Thereafter, the Battle was declared 'redundant for operational use.' But the orders continued. In 1939 it was 'definitely obsolete' but in 1940 they were still pouring out. By the end of the year over 3,100 had been produced, two and a half times the number first intended . . .(Divine 1966, p. 195)

Other production blunders included 5,421 Bristol Blenheims and 1,812 Armstrong Whitworth Whitleys. All of these aircraft were declared operationally useless in 1939. Most Whitleys never made it out of aircraft storage facilities. (Divine 1966, p. 196)

The British established this incredulous rearmament program in early 1934. Acknowledging the new threat from modern aircraft, Sir Winston Churchill, addressed Parliament concerning the vulnerability of Great Britain:

> Not one of the lessons of the past has been learned, not one of them applied, and the situation is incomparably more dangerous. Then we had a Navy and no air menace. Then the Navy was the 'sure shield' of Britain . . . . We cannot say that now. This cursed, hellish invention and development of war from the air has revolutionized our position. We are not the same kind of country we used to be when we were an island, only twenty years ago. (Divine 1966, p. 192)

Initially, rearmament was a reaction to international events that affected the national security. Churchill's speech was a reaction to the news that Adolph Hitler was made virtual dictator in Germany. Whenever new intelligence estimates dictated a change in military policy, new contract orders for aircraft were made. This was part of the parity politics of the 1930s when Great Britain based its numbers of operational aircraft upon the One Power Standard. Similar to the race to build battle ships, British air policy was

based on the numerical superiority or parity of numbers with the country posing the biggest threat to national security. Parity with the German threat meant revising the orders for aircraft as quantitative intelligence updates were provided to the Cabinet. Unfortunately, this proved to be pitiful for any long-term planning and placed great strain on both the aviation industry and the British Treasury.

One can certainly judge by the number of operationally useless aircraft produced that the aircraft industry was ill-equipped to handle the large production requests for modern aircraft. The aviation industry should not be faulted too much because they simply reacted to the needs of the government as best as they could. Without a forecast requirement for more military aircraft, their outputs for previous contracts were more than sufficient to manage their businesses. It is the rapidity of which they were called to retool and produce in such large quantities that caused this predicament. From 1934 until 1939, the aviation industry had to cope with 13 different rearmament plans, each calling for either increases in production numbers or a shift in production priorities.

Rearmament plans were called "schemes" and given a letter designator. In 1934, Scheme A was was accepted and based upon an intelligence report outlining a quantitative analysis of the German air threat. It called for the production of 500 bombers and 336 fighter aircraft. Successive schemes were modified when upgraded intelligence estimates of German Air Force strength were determined. They all included increases in aircraft numbers and increases in expenditures from the Treasury. Scheme A called for the production of 1,252 front line aircraft for home defense, out of a total production outlay of 1,544 aircraft. Production in subsequent years continued to rise until 13 different schemes had been approved by the British government. There were no significant

changes to production schemes except for the increases in production. The lone exception occurred in 1937 with Inskip's defense reprioritization in Scheme L. Scheme L called for 2, 378 front line aircraft for home defense out of 2,863 total. Parity politics was abandoned in favor of a qualitatively superior force structure for defense against strategic air attack. Fighter aircraft were finally given priority over bombers but the ultimate fighter aircraft force structure in 1939 still constituted less than half of the proposed bomber production (1,352 bombers to 600 fighters). There existed insufficient time for a substantial change in aircraft ratios once the war began. Scheme M, the final production request is shown in Table 7. This scheme is significant because it represents the final, but unfulfilled, plan for RAF rearmament prior to the start of World War II.

Scheme M Aircraft Production Plan, November 17, 1938

Aircraft Type	Number of Front Line Aircraft
Heavy Bombers	1,360
Medium Bombers	None
Fighters	800
Reconnaissance	389
Overseas	636

Table 7. Scheme M Aircraft Production Plan, November 17, 1938.
Source: Malcolm Smith, *British Air Strategy Between the Wars*, 1984.

For defense of the home islands, Scheme M called for the production of 2,549 front line aircraft out of a total of 3,185. Fighters were still prioritized and scheduled for completion by March, 1941. Existing orders for light bomber aircraft were determined to be

unnecessary and their production schedules were eliminated. Also noteworthy is the temporary cessation of medium bomber production in favor of fighters. Heavy bombers, although de-emphasized by Inskip's reprioritization, were still slated for production. After the Battle of Britain, these aircraft would provide the principal means of fulfilling the RAF's long standing predilection for strategic bombing.

Even with the increased production schedule, the RAF was never able to meet its production goals because the war started before they could be accomplished. The numbers were barely sufficient, however, but still indicate success. Despite the problems with the aviation industry, the RAF entered World War II with numerical parity to the Luftwaffe in the area that later proved decisive--interceptor fighters. Table 8 shows a comparison of strengths between the German Air Force and the RAF.

Force Structure of German Air Force and the RAF, September 1, 1939

Aircraft Type	Germany	Great Britain
Long Range Bombers	1,180	1,313
Dive Bombers	336	0
Interceptor Fighters	770	773
Escort and Destroyer Fighters	404	0
Others (excluding naval and transport aircraft)	916	407
Total	*3,611*	*2,573*

Table 8. Force Structure of German Air Force and the RAF, September 1, 1939.
Source: Malcolm Smith, *British Air Strategy Between the Wars*, 1984.

Even with this final order of battle, RAF force structure was also limited by the availability of quality trained aircrew and skilled aviation industry workers. Quality aircrew training became an on going problem when RAF manpower expansion exceeded the production of aircraft. There were too few aircraft for all of the aircrew to receive adequate training. Additionally, as obsolescent aircraft continued to pour forth into service, the training accomplished by aircrew in these aircraft was not representative of the skills, equipment, or procedures required by the weapon system that they would eventually operate. This created a force structure comprised of a large, marginally skilled, very young, crew force commanded by those with not much more experience. Low quality officers were operational flyers as well as filling middle leadership positions. The operational shortcomings of RAF force structure manifested itself in bombing experiments conducted in 1937, when it was determined that the average bomber crew was unable to drop a bomb load within 250 yards of a target. (Smith 1984, p. 270) These tests were conducted in daylight and shed light on the fact that the RAF might not be able to fulfill its strategic bombing doctrine.

Skilled aviation workers also constrained RAF force structure in that the rapid expansion of the aviation industry could not be exploited fully because of a shortage of skilled workers. The industry found itself saddled with the same problems as the RAF--a marginally competent worker force of inferior quality. Aviation corporations found themselves unable to hire the workers they needed the most. For example, engineers were difficult to hire since other competitive industries, such as the automobile manufacturers, would draw some of the better workers away. In a peacetime economy, there was no available conscription plan to make up for the shortfall of needed workers. This

occurred even when the work force in the aviation industry more than doubled from 60,000 to 128,000 employees in the seven months after the Munich Crisis. (Smith 1984, p. 252) The expansion was so rapid that in the long run, aircraft quality suffered and production schedules were delayed. This contributed to the problems the RAF experienced in creating a force structure able to execute its wartime mission.

With this existing force structure and organization, the RAF entered World War II with a commitment to strategic bombing that was unfulfilled. Inskip's redirection of aircraft production priorities also switched defense priorities. Fighter Command's aerial defense missions became the primary and critical task for the RAF. The old doctrine did not die, however, because the production of heavy bombers continued as well as the improved training of bomber aircrews. While the Battle of Britain was certainly the RAF's finest hour in World War II, RAF Bomber Command still embodied the heart and soul of British air operations. Subsequent to the air battles of Southeastern England in 1940, the Bomber Command reestablished itself as the cardinal executor of British war policy against Germany. In this role, the humanitarian aspects of British air doctrine, specifically strategic bombing, would be played out in a significant way.

E. EVALUATION OF BRITISH AIR POWER EMPLOYMENT

World War II started in September, 1939, with the German invasion into Poland. In less than one month, Polish resistance faltered in Warsaw and the first battle of the war ended. Both Britain and France declared war on Germany but were unable to offer any assistance. On October 6, Hitler asked the allies to end the state of war between them now that Poland was no longer a sovereign, independent state. Britain and France refused and so began the "Phony War," which lasted until the following spring. The British

Expeditionary Force (BEF) and French Army remained idle behind the Maginot Line and the *Wehrmacht* sat motionless in the East behind their own defensive positions. (Leckie 1992, pp. 687-690)

The RAF entered the "Phony War" unsuited to conduct strategic bombing operations by virtue of its obsolescent aircraft, inadequate equipment, and largely untrained bomber aircrews. Bomber Command possessed only three types of long range bombers capable for any strategic action. These included 6 squadrons of Wellington and Hampden bombers, and 5 squadrons of Whitleys representing a total of 204 aircraft. These were all based in Britain. RAF leadership correctly concluded that these assets lacked the capability to effectively accomplish their missions. Subsequently, Bomber Command authorized missions that the aircraft and crews could accomplish. The bomber squadrons were given the daylight task of attacking German naval presence in the North Sea. At night, the bombers were used in psychological operations dropping millions of propaganda leaflets on German positions. (Terraine 1992, p. 476)

On the continent the RAF was charged with providing cover for the BEF and the French Army forces. Requirements for this mission included an operational mix of bombers, fighters, and reconnaissance aircraft used to support all aspects of ground activity. Initially, 25 squadrons were sent in 1939; 13 of which were uncharacteristically placed under the control of the BEF commander. The remaining units of light bombers and fighters were controlled by the RAF Air Officer Commanding in Chief, Air Marshall Barrat. (Probert 1992, pp. 687-688) The total number of deployed aircraft was 460. This included modern Hurricane fighters, but also the obsolete Fairey Battles and Bristol Blenheims. Air Chief Marshall Dowding would not allow the superior Spitfire aircraft to

be deployed to France because he felt they were indispensable to British national defense. Dowding also balked at the numbers of Hurricane fighters sent, initially deploying 4 squadrons, and reluctantly increasing the total to 16 during the fight for France.

As the Battle of France unfolded, both the French and British forces fell victim to the erroneous military policies of the previous decades. The BEF, deployed RAF, and combined French Forces were unable to stop enemy intrusions into France. The RAF learned some hard lessons when its deployed aircraft failed to achieve any appreciable results against the *Luftwaffe*. First the RAF learned that fighter aircraft were indispensable to achieving any results from an air offensive. Historian John Terraine remarks that this occurred because of the superiority of the German system that integrated the air and land forces into a cohesive striking force in the face of an opponent that did not. He credits the decisiveness of the German victory to the "total saturation" of the battle area with German air power, thereby denying the allied air forces the opportunity to counter strike. This led to the bleeding of not only the allied ground forces but their air forces too. (Terraine 1992, p. 478) For example, on May 14, 1940, the Battles and Blenheim aircraft accounted for 48 out of the 99 allied aircraft lost near Sedan. These were claimed by the German fighters. The *Luftwaffe* was equally devastating against the RAF's more modern aircraft. Approximately 60 percent of their Hurricane fighter force was sent to France, totaling 261 aircraft. Only 61 returned. During the British evacuation at Dunkirk, the combined losses by both the deployed Hurricanes and Spitfires operating from Britain equaled 25 percent of the RAF's fighter force.

Although the allies suffered a humiliating defeat, Great Britain refused to surrender. Germany, planning an invasion of the British home islands, launched the air

operations now known as the Battle of Britain--an attempt to gain air superiority over the English channel to pave the way for an invasion force. This was the world's first decisive air battle and the British won solely on the back of the RAF Fighter Command. It is ironic that the doctrine of aerial defense, only recently implemented into the RAF doctrinal lexicon, became the dominant method of air warfare so early in the war. The RAF was always about bombing until events forced otherwise. This diversion from RAF doctrinal preferences, however, was a closely run thing.

The battle had four distinct phases where the Luftwaffe attacked four different aspects of British society. At first, the Channel air defenses were assailed, then British airfields in an attempt to destroy the RAF's combat capability. This was followed by attacks on British industry to stifle the production of war materials, and finally, there were strategic bombing attacks on British cities. Although critically short of fighter pilots, British interceptor fighters enjoyed the advantages offered by RAF strengths in leadership, Command and Control, and technology. Technology made the significant difference in the Battle of Britain as the British radar and aerial defense network allowed RAF fighters to precisely intercept incoming German fighters and bombers. The RAF, despite the losses from France, proved itself up to the task in the face of superior German numbers in aircraft. At the Battle's outset, the Germans had an advantage of 2,670 front line aircraft to the RAF's 1,475. At the end, the Luftwaffe losses were 1,733 aircraft to 915 for the British. (Leckie 1992, p. 716)

The RAF was also learning other lessons that would impact directly on future bombing operations on the European continent. These lessons grew out of the experiences in France, the Battle of Britain and the RAF's early attempts to conduct aerial bomb-

ing. First, the RAF learned the true value of fighter aircraft. Superbly trained flights of fighters possessed a decisive advantage over slower, bomber aircraft. A fighter's speed, firepower, and maneuverability rendered lesser aircraft vulnerable in all aspects of air warfare. Second, in daylight missions, bombers were unable to protect themselves from fighters, even if the bombers flew tight, protective formations maximizing the firepower from their on-board machine guns. Third, effective bombing operations required cover, either from friendly fighter escorts or from darkness. Precision daylight bombing raids produced too many losses and would subsequently impact Britain's ability to sustain an air war.

After the Battle of Britain, the British stood alone, defying Germany the prospect of peace in Western Europe. There was the problem, however, of conducting and sustaining military operations against the enemy. With no direct means to attack Germany, Britain reevaluated the manner in which they could continue the war. The RAF also reevaluated its position as well and found an answer in its strategic bombing doctrine. The RAF decided to conduct a bomber offensive in order to destroy German synthetic oil plants and other vital military industries. This required daylight, precision bombing by tight aerial formations escorted by fighter aircraft. Unfortunately, British fighters lacked the long range necessary to accomplish this task. This effectively ruled out daylight missions. There also remained the question of the bomber crew force and its capability.

Resorting to night operations, the RAF was still hampered by its ineffective equipment and poorly trained crews. This led to an abandonment of precision bombing techniques in favor of area bombing. Because the bomber crews could not hit any target with any accuracy, the RAF decided to also change targets from industrial locations to

the one thing that was easy for crews to locate: German cities. German cities were not the preferred method of attack. The RAF preferred an industrial bombing policy which they developed prior to World War II. RAF director of Plans, Air Vice Marshall Sir John C. Slessor, stated as much in 1939, when he said "Indiscriminate attack on civil populations as such will never form part of our policy." (Bindinian 1976, p. 15) The truth, however, was that public pressure and the overwhelming failure of RAF bombers to hit any target with any accuracy, forced a change in RAF policy. Area bombing of civilian targets was chosen because it could deliver some results and could be justified to the British public. John Terraine writes:

> Area bombing had the attraction of hitting some sort of military target--some factory, power station, oil plant, or whatever it might be, of direct value to the German war effort--and at the same time striking at the German morale, which Bomber Command and the Air Staff, inspired by Lord Trenchard, believed to be the weak spot in Germany's armor. (Terraine 1992, p. 489)

The premises of RAF bombing strategy dictated that area bombing attacks on civilians would cause a disintegration of the German war production--the same goal sought by a precision bombing policy. The logic for this policy is as follows: The destruction of war production would be followed by a collapse of the German social and industrial fabric. A bombing campaign that deprived German workers of the means to work safely and effectively would eventually induce a loss in morale leading to nervous disorders of a huge scale. This results in economic chaos effectively dislocating the German war industry. If civilians suffer sufficient hardships as a result of the bombing, they would then pressure the German government to seek relief through peace. At the bottom of this strategy is the belief that the civilian morale is an established causal link in

the sustainment of German war production. Despite the fact that the Bomber Command knew nothing of how civilian morale is constructed, nor how to measure the impact of bombing on the same, it is remarkable that this strategy was adopted. The truth remains, however, that there was little else that Britain could do.

F. CONCLUSION

RAF Bomber Command implemented its new strategic bombing policy with a vengeance. Statistics show that they were wholly successful in devastating German cities and civil populations. Allied air forces dropped a total of 1,986,423 tons of bombs on the European continent. The total dropped on cities and towns (676,846 tons equaling 34%) exceeded all other measures of tonnage released on any other target group. The RAF preferred cities to other targets dropping 544,860 tons of bombs representing 55 percent of the total dropped by the Allies throughout the war. (Bindinian 1976, pp. 1-4)

Although the numbers are impressive, they do not represent the total extent of the devastation cause by allied aerial bombardment. Germany had a population of approximately 80 million when the bomber offensives began. Twenty six million lived in 60 cities of more than 100,000 inhabitants--the RAF's primary target zone. Allied bombing destroyed approximately 55-60 percent of all urban residential buildings and killed about 406,000 civilians. Author Olaf Groehler reviewed the number of civilians killed as applied against represented age and sex demographic information of 1937 Germany. He found three interesting results from his study, which are quoted below:

1. Owing to the composition of the German civilian population during the war, the number of females killed is far greater than their percentage

of the total population. This is partially explained by the recruitment of a large portion of the male population for the *Wehrmacht*;

2. The victims of air raids in the age-group between 1 and 15 years are less than their percentage of the total population. This is primarily explained by the evacuation policy and the relocation of complete schools out of the areas of big cities. This does not apply, however, to the death rate of children between 1 and 5 years of age. This rate largely corresponds to their percentage of the total population; and

3. Hardest hit, relatively speaking, by fatal consequences of the air raids was the population group of males and females of over 60 years. Their percentage of the population was 12 percent, their ration among the dead in the air raids amounted to 24 percent. (Groehler 1992, p. 292)

Among the German population, this indicates that the majority of the killed civilians as a result of the allied bombing campaigns were either female, infants, or the elderly.

Groehler's conclusions indicate that the RAF bombing effort was devoid of humanitarian considerations, especially when the bomb tonnages are placed in context with those who died. It must be mentioned that the RAF bombing doctrine was driven by much more than the desire to kill noncombatants. The industrialization of society and of modern warfare had done much to erase the lines separating those in uniform from the civilian workers. This coupled with the fact that no existing bomber force, especially the RAF, could regularly hit targets of military significance opened the doors for indiscriminate bombing. For Britain, the necessity of continuing to fight dominated the mood

of not only the British government, but the suffering British public as well. Both the Battle of Britain and the "Blitz" claimed the lives of many British civilians. In light of the greater inhumanity from Nazi Germany, the British leadership believed that they were justified in this course of decidedly inhumane action. It is best exemplified by this quote from Winston Churchill, made on October 8, 1940, during the latter stages of the Battle of Britain. Churchill states:

> In all my life, I have never been treated with so much kindness as by the people who have suffered so much . . . on every side there is the cry, 'We can take,' but with it, there is the cry, 'Give it to 'em back.' (Bindinian 1976, p. 17)

At the beginning of this chapter, the question was asked as to how the British arrived at a situation where the indiscriminate bombing of civilians became the primary method of conducting an air war. In reply, this review focused on the development of British air power theory and doctrine preceding the Second World War. The RAF was established as a service arm dedicated to strategic air attack during the latter part of World War I. Although the RAF accomplished many other roles and missions, it has always displayed loyalty to its strategic role in British national defense as a bomber force. Unfortunately, this proclivity for strategic bombardment was buttressed by international events in China and Spain which seemingly reinforced the idea that air power, as it was then developed, could be decisive in war. Politicians and the public alike were inculcated with a dreaded fear of air attack leading to an unreasonable assessment of bomber capability. British civil and military leadership misread events as to the actual potent force of present day air power while exaggerating claims of what bomber aircraft could deliver.

This caused British air power advocates to assert claims that surpassed the test of reality with regard to the conduct of a strategic bombing campaign. This is especially noteworthy in the construction of a sufficient RAF force structure to implement the theories of strategic bombing. The British suffered when the RAF was unable to execute the most basis tenets of its doctrine due to operational deficiencies in aircrews and aircraft. The result of RAF ineptitude was that the Bomber Command could not deliver in a manner prescribed by RAF doctrine--the precision bombing of targets possessing military relevance. At the conclusion of the Battle of Britain, in order to continue the war against Germany, Great Britain struck back in the only manner left to them against the only vulnerable spot of the Third Reich: civil populations. This attack was to be made through indiscriminate area bombing of large German cities. Although many historians have offered reasons and some justifications for the choices made by the RAF and the British government, at the end of it all is that strategic bombardment of civil populations offers one very distinct choice to those attacked from the air: it is either capitulation or extermination. In a nation's struggle for existence, as evidenced by the British refusal to give-up, surrender is often not an option.

VII. CASE STUDY ANALYSIS: THE UNITED STATES ARMY AIR FORCE

A. INTRODUCTION

> *A nation may have every other element of air power but still lag behind if its government has no real urge to insure its further development. The attitude and actions of government will fully determine the size of our military establishment, and greatly affect the efficiency of our civil air establishment, our aeronautical industry and facilities--hence our air power in being. John C. Cooper, Commander, United States Navy*
>
> *Why can't they buy just one airplane and take turns flying it?*
> *President Calvin Coolidge* (Westenhoff 1990, pp. 23,27)

United States' air power doctrine between the two World Wars was shaped by two new prophets of strategic thought: Italian Air Marshall Giulio Douhet and American Brigadier General William (Billy) Mitchell. The air power theories of these two men were significant in the development of a cogent military doctrine for the use of airplanes in warfare. Both were advocates of what Douhet called "Command of the Air," attainment of air supremacy in order to accomplish the true objective of all air forces--the offensive air attack of an enemy's vital and industrial centers. US air planners developed this vision into the precision strategic bombing operations of the US Army 8th Air Force in Europe during the Second World War. Douhet and Mitchell's prophesies established the strategic core concepts that evolved into the United States' air power doctrine.

In contrast to the Royal Air Force, the United States Army Air Force (AAF) flew daylight, precision bombing raids as stated in their air war plans. The vital strategic targets were established based on the "industrial web" concept--the destruction of focal points within a nation's economic, industrial, and social structures that formed the critical

organic systems of a country. This is not to assert that the AAF bombing efforts in Europe did not include the area bombing of cities. Approximately 20 percent of the bombs that devastated German cities and towns was dropped by the AAF. (Bindinian 1976, p. 3) The AAF strategic bombing policy was primarily based on selective targeting of sites with military significance. The United States initially opposed the concept espoused by Douhet, and practiced by the RAF, that population centers be bombed. It was generally believed that an attack on the enemy citizenry was against American morals. (Hansell 1986, p. 13) This opposition to civilian bombardment was not new to American air doctrine. It had been around since World War I when President Woodrow Wilson established the preference for discriminate military targets with this statement:

> I desire no sort of participation by the Air Service of the United States in a plan . . . which has as its object promiscuous bombing upon industry, commerce, or populations in enemy countries disassociated from obvious military needs to be served by such action. (Weigley 1973, p. 236)

Wilson's desires, however, were abandoned. The United States may have preferred other targets than the civil populations of enemy states, but the record shows that the United States conducted strategic air attacks on Japan in World War II that were primarily aimed at population centers. Using RAF area bombing techniques and armed with incendiary bombs, the AAF B-29 aircraft wrought untold devastation on to Japanese cities. For example, the night fire-bombing raids conducted on March 9, 1945 over Tokyo burned to the ground 250,000 houses leaving one million people homeless. Approximately 84,000 persons were killed--more than those in the atomic bomb blast over Hiroshima. (Leckie 1992, pp. 825-826) How did the Americans arrive at this situation where systematic targeting of urban areas became a matter of strategic policy?

This chapter seeks to find the answer with a review of the development of US air power theory, doctrine, organization, and force structure during the inter-war years. It will finish with a look at the AAF's application of air assets in World War II for a determination of the humanitarian aspects of AAF strategic air operations.

B. UNITED STATES AIR POWER THEORY

As stated before, the twin pillars of US air power theory are Giulio Douhet and Billy Mitchell. These men's vision of future warfare, dominated by air power, colored the strategic thinking of US air war planners and air power advocates in the two decades after World War I. The most profound influence in the development of air power theory is Douhet because all strategic aerial thought in the United States emanates from his writings. (Watts 1984, p. 5) Believing that aircraft represented the dominant military weapon of his time, and certainly, the future, Douhet expounded the benefits of battle within an aerospace context. His theory rests on one fundamental premise recognizing that an aircraft is the most unique and capable implement of war because of its ability to operate anywhere. This omnipresent quality expands the legitimate battle area from troop concentrations to an opponent's political center of power. All aspects of an enemy's country become vulnerable to air attack, both at the tactical and strategic levels.

From this unalterable truth, Douhet extrapolates the fundamental assumptions of his air power theory. Douhet assumed that aerial combat was inherently offensive whereas the defensive mode of World War I land campaigns would always lead to static battle fronts. Aerial combat was the last refuge of purely offensive doctrine left to modern warfare where swift, decisive victory was still possible. Douhet also thought that civilian morale was brittle, as was the industrial, political, and social infrastructure of all

nations. These became legitimate targets for air attack because aerial defense was useless in the face of a massed aerial assault. Douhet predicted that a war would end before an aerial defense system could make a difference.

Based on these assumptions, Douhet arrived at several conclusions concerning the future of warfare and the role of air power in that conflict. Author Donaldson Frizzell summarizes these conclusions as follows:

> 1. The nation that can gain command of the air will win the war;
> 2. Command of the air is achieved by destroying the enemy air forces by bombing their airplanes and installations on the ground;
> 3. After gaining air superiority, offensive action should be directed to cut off the surface forces from their bases of support, and to attack the enemy industries and centers of population in the interior of his country;
> 4. The basic type of aircraft should be a dual purpose "battle plane" that can fight in the air battle and also launch air-to-ground offensives.
> 5. All resources should be put into offensive air power, allocating the army and naval surface forces enough for an adequate defensive posture; and
> 6. The strategic importance of air power requires an "Independent Air Force" and the three branches of service--land, sea, and air--should be organized under a "Supreme Command" which will have sufficient authority to determine each service's needs and make the proper allocation of resources. (Frizzell 1989, pp. 150-151)

History has since shown that Douhet's prophesies were correct concerning the supremacy of offensive action inherent in air force operations. The basic tenets of any air doctrine requiring air superiority--"Command of the Air", are universally accepted maxims for the proper employment of air assets. This is especially true in light of the technical advances made in today's aircraft which are now capable of world-wide operations. Recently, the air operations conducted in the Gulf War demonstrate clearly that the opponent who commands the air will also dominate the surface.

Douhet, however, has also been proved wrong. Obviously his most glaring error was in asserting that civilian morale was brittle, thereby designating civil populations as legitimate military targets. From the experiences of World War II, both the British and German morale was shown to have been fortified by air attacks. Instead of a broken national will and spirit, there was often a determined resolve to continue fighting from both countries. Douhet was also incorrect about aerial defense. Aerial defense systems were viable tools to protect the British in World War II but it should be noted that the system employed in the Battle of Britain was a technological accomplishment not available to Douhet when he wrote his book. Nevertheless, this maxim reinforced the idea that the bombers always get through and further spread the notion that the employment of aerial assets could only be used for offensive purposes. Both concepts were proven false in the face of a good fighter defense.

All of these rights and wrongs propagated by Douhet found their way to the United States and were important to the formulation of US air power theory and doctrine. Douhet's assumptions were thrust into prominence by Billy Mitchell, who also developed his own ideas concerning the development of air power as it related to the United States.

Mitchell's message was one that established the importance of air power development based upon its impact to national defense. According to Mitchell, aircraft had rendered the notion of an isolationist America as obsolete. His vision was one of a shrinking globe made smaller by aircraft spanning oceans and continents. Air power was a means to forge new relationships with other states in new ways. For the the United States, its ability to grow as a national power and participate in these new relationships could only occur by expanding and exploiting advantages offered by aircraft. Mitchell likened air power's potential for national greatness in the same way that sea power was a necessary prerequisite to greatness for the large commercial states of the eighteenth and nineteenth centuries. The United States had entered the aeronautical era and could not go back.

Billy Mitchell's path to these conclusions started in World War I, just after America's entry into the war. Mitchell was chosen to observe the French and British air commands in France because of his experiences as a pilot and officer in the signal corps. Arriving in Europe in May 1917, he went first to the French Air Command. Mitchell investigated their photography and reconnaissance operations and inquired about their attempts to conduct bombing raids. He was an eyewitness to an German bombing raid on the French and was not only impressed by the material damage caused but also by the bombing's impact on the morale of the French civilian. Mitchell recalled that the French women and children were "paralyzed with fear." (Frizzell 1989, p. 155) Another important observation gleaned from the French experience was the conclusion that air power was inherently offensive. This was demonstrated to him when he saw the French assume a defensive posture in their air operations with very poor results. Continual defensive air patrols excessively fatigued the pilot force and debilitated French air operations.

At the British Headquarters, Mitchell met Major General Trenchard, who also agreed with Mitchell's acceptance of the offensive potential of aircraft. This was confirmed for Mitchell when he saw the RAF's huge Handley-Page bomber, capable of carrying a very large 2000 pound bomb. Mitchell also inspected the manner that the RAF established their organization, supply, and maintenance efforts. He saw the large logistical requirements necessary for the sustainment of long-term air operations. Mitchell's greatest lessons, however, came from Trenchard's air policies which required units to:

> unify all aviation under one commander, to place the minimum number of airplanes necessary for the use of ground troops in action with each army, and to concentrate the bulk of bombardment and pursuit [aircraft] so that he could 'hurl a mass of aviation at any one locality needing attack.' (Futrell 1989, p. 21)

When the American Expeditionary Force (AEF) arrived in Europe in September, 1917, Mitchell was installed as the Air Service Commander, Zone of Advance under the command of General John J. Pershing. As the AEF was a new organization, the proper role and use of the Air Service within the AEF was uncertain. To better suit the needs of the AEF, Pershing reorganized the Air Service establishing Brigadier General Mason M. Patrick as the chief, and Mitchell placed as the chief of the air service, First Army. Colonel Frank P. Lahm was made chief of the air service for the Second Army. Mitchell later was promoted to Brigadier General and made chief of air service, Army Group, comprising the AEF's First and Second Army air operations. (Futrell 1989, p. 22)

The primary task for the Air Service was to provide trained aviation personnel for combat operations with the air units within the AEF. All air assets were divided and assigned to Army units within the First and Second Armies along corps and division

levels. There was no central control of all aviation assets as Mitchell saw with the RAF. Because Army commanders lacked the expertise to effectively employ AEF aviation in conjunction with ground operations, Mitchell wrote a pamphlet in the fall months of 1917 entitled *General Principles Underlying the Use of the Air Service in the Zone of Advance AEF.* US Air Force historian Frank Futrell notes that this document constitutes the first formal declaration of doctrine for the US Army Air Service. Futrell writes:

> In the preface, Mitchell stated that the outcome of war depended primarily on the destruction of an enemy's military forces in the field; no one of the Army's offensive arms could alone bring about complete victory. Hence the mission of the Air Service was to help other arms in their appointed missions. Mitchell divided aviation into two general classes; tactical aviation, which operated in the immediate vicinity of troops of all arms, and strategical aviation, which acted far in advance of troops of other arms and had an independent mission. According to Mitchell, tactical aviation consisted of observation, pursuit, and tactical bombardment . . . . Tactical bombardment operated within 25,000 yards of the front lines. Its objectives were to assist in the destruction of enemy material, to undermine the morale of enemy personnel, and to force hostile aircraft to arise and accept combat by attacking enemy airdromes. Mitchell considered that strategical aviation included pursuit, day-bombardment, and night-bombardment squadrons. The radius of actions of strategical aviation was usually more than 25,000 yards in advance of enemy troops. The object of strategical aviation was 'to destroy the means of supply of an enemy army, thereby preventing it from employing all of its means in combat.' Such would be accomplished, Mitchell stated, by destroying enemy aircraft, air depots, and defensive air organization, as well as enemy depots, factories, lines of communication, and personnel. (Futrell 1989, pp. 22-23)

Remaining true to his "General Principles," Mitchell established Air Service operations using purchased British and French aircraft and American trained aircrews. His greatest air operations effort supported the battle at Saint-Mihiel in September, 1918. Mitchell was able to combine all Allied aviation assets into a large air force encompassing all aspects of tactical and strategical operations using 701 pursuit, 414 bomber, and

366 observation aircraft. In this operation, Mitchell was able to draw lessons that influenced the theory behind future US air power doctrine.

The combined Allied air forces engaged the enemy with pursuit aircraft to gain air superiority but found it could only be maintained in certain sectors of the battlefield at certain times. This posed a problem for bombing and strafing air operations which were not effective unless the allies had air superiority. Bomber losses were heavy, about 60 percent, when pursuit aircraft were flying in defensive roles supporting the bombers. This was substantially reduced when the pursuit aircraft were permitted to engage enemy air assets as they rose to engage allied bombers. Losses decreased to about 8 percent. All air operations were made in conjunction with the Army's ground offensives. No independent air operations were conducted. The air missions thought to be the most vital were flown by observation aircraft supporting surface Army units. (Futrell 1989, p. 23)

Most of the air operations in France mirrored the battle of Saint-Mihiel with tactical aviation used in conjunction with the Army's land campaign. It was no surprise that the majority of Air Service leadership felt that this demonstrated the true purpose of aviation in the battle area. General Patrick, Chief of the Air Service, believed that AEF operations "clearly demonstrated the fact that the work of the observer and observation pilot is the most important and far-reaching which an air service operating with an Army is called upon to perform." (Futrell 1989, p. 24) This statement is understandable based on the fact that the United States was not able to field any heavy bombers, like the British Handley-Page, before the signing of the armistice. Nevertheless, the idea of independent strategic air operations was already known to the Army Air Service.

The United States government was in the process of ordering the construction of a sufficient bombing force for use in strategical aviation based on the findings of the wartime Bolling Commission. The Bolling commission was charged with the determination of US aircraft requirements for the war in Europe. Based on the success of the Gotha bombing raids in England, the Air Service decided that the AEF should employ both tactical and strategical aircraft against Germany. The initial numbers presented by the Commission were 3,000 to 6,000 airplanes. Indecision as to what bombers were to be made, either an Italian Caproni bomber or a version of the Handley-Page, as well as a slow production process, prevented the AEF from obtaining any bombers before the war's end. (Futrell 1989, p. 24) Mitchell, thinking that the war ended too soon to validate any bombing policy without practical experience, did not reevaluate his ideas on strategic bombing until his return to the United States. At the war's end, he still believed that aviation's greatest benefits were exploited when aircraft were used in conjunction with offensive Army campaigns. Air power's primary objective, after defeating the enemy air force, still remained the enemy army in the field.

After World War I, Mitchell became the United States' most ardent supporter of air power. He provided substantive testimony to the benefits of air power in congressional military committees as well as interviews to newspapers and magazines. He worked from within the Air Service to create an independent Air Force and he recommended the creation of a separate Department of National Defense with Service Secretaries. Mitchell also demonstrated with utmost clarity the ability of air power to alter warfare. His most memorable action was the aerial assault and sinking of the *Frankfort* and *Ostfriesland* in the Chesapeake Bay in 1921. From 1922-1925, Mitchell found that he could not con-

vince the Army or the Air Service to reorganize into an instrument ready for the air trials he foresaw in future armed conflict. The subordinate role of air forces in warfare was being reinforced at almost all levels of the Army, and most noticeably by its leading General, John J. Pershing. (Hansell 1986, p. 5)

If the Army's views remained static, Mitchell's continued to evolve through the 1920s. As the United States grappled with the same air power issues which dominated Mitchell's thinking, Mitchell found himself more and more aligned with the theories proposed by Douhet. Like so many participants in World War I, the stagnant trench warfare in France was seen as a futile method of waging war--especially with the enormous number of casualties. Mitchell became convinced that the application of air power against the enemy army was a mistake. Air power was seen as an acceptable method for preventing the large dimension of devastation caused in the First World War. That meant shifting the priority of attack on to the enemy's vital centers. In a 1926 statement made before the House Committee of Military affairs, Mitchell's affiliation with Douhet was revealed as he stated the following:

> There has never been anything that . . . has changed war the way that the advent of air power has. The method of prosecuting a war in the old days was to get at the vital centers of the country in order to paralyze the resistance. This meant that the centers of production, the centers of population, the agriculture districts, the animal industry, communications--anything that tended to keep up war. Now in order to keep the enemy out of that, armies were spread out in front of those places and protected them by their flesh and blood . . . It led to the theory that the hostile army in the field was the main objective, which it was. Once having been conquered, the vital centers could be gotten at . . . In the future, we will strike, in the case of armed conflict, when all other means of settling disputes have failed, to go straight to the vital centers, the industrial centers, through the use of an air force and hit them. That is the modern theory of making war. (Hansell, 1986, p. 4)

The modern theory behind US air power is derived from both Douhet and Mitchell. It is both fantastic in its vision and broad in its scope, especially considering the time that it was proposed. At the core of the theory is the belief in the unique, offensive nature of aircraft and the vulnerability of "vital centers" for attack. It is important to understand, however, that most military men in the United States, as well as the civilian leadership, had an aversion to the idea of strategic bombing where civilians were specifically targeted or inadvertently put in harm's way. This aspect of United States moralism ultimately influenced the strategic priorities of selected targets and acceptable bombing methods for the AAF. The following section will review the development of AAF doctrine in the 1920s and 30s. It will include the formulation of core concepts and strategic principles that led to the initial blueprint for conducting the air war in Europe.

C. THE DEVELOPMENT OF UNITED STATES AIR DOCTRINE

At the conclusion of World War I, the United States possessed a substantial air force. This was due in large measure to the United States' ability to buy needed aircraft and train sufficient personnel to conduct air operations. The final tally of the US Army Air Service assets on November 11, 1918, was 45 American squadrons totaling 740 airplanes, 767 pilots, 481 observers, and 23 gunners. The Air Service made 150 bombing raids and dropped 275,000 pounds of explosives. American aviation corporations made 11,760 aircraft of which the AEF received 1,213. The AEF also received 4,791 French, 261 British, and 19 Italian aircraft for use against the Germans. (Futrell 1989, p. 27) Even with this substantial growth in the service, the feats of the AEF air operations were not convincing enough to establish greater roles for an air force within the US Army.

Air power was unable to demonstrate its full potential as a decisive implement of warfare. The Army thought that the Air Service should continue in its role as an auxiliary to surface forces and thus set the tone for doctrinal development in the decade following World War I. US Army intransigence in maintaining its air arm would last until 1947, but that did not deter air advocates in government from forcing the issue to the forefront of national concern. The 1920s were filled with Congressional inquiries and Presidential Boards to settle the question of the proper role for an air force in National defense. The Army fought it every step of the way and the result was that 1920s air power doctrine stagnated.

The Air Service, Air Corps, and Air Force from World War I until 1947 were all established units within the US Army. Army doctrine was formulated to dictate the practical application of men and material for surface operations. In the next two sections, the term "doctrine", regarding the use of aircraft, describes the fundamental concepts, principles, and beliefs of airmen as applied in the conduct of an air war. These concepts, principles, and beliefs were never part of official Army doctrine, then or now. The term "doctrine" is used as a meaningful shorthand to describe the foundation behind US Army strategic air planning efforts. This foundation is central to understanding the strategic bombing operations against Germany and Japan, as well as the determining factor in the build-up of sufficient force structure to conduct the air war, and the organization required to implement it.

1. United States' Air Power Doctrinal Development in the 1920s.

After World War I, many civilian officials in the US government looked at Great Britain's formulation of an independent air force as a step in the right direction. The

Smuts Committee decision establishing the RAF was based on the belief that air power was as important to the future defense of Britain as was sea power before it. Many air advocates in the US thought that air power was also important for America's national defense and started to raise the issue publicly. World War I air aces, such as Eddie Rickenbacker, caught the imagination of the public and renewed interest in promoting US military and civilian aviation. All of this increased fascination with aviation resulted in an evaluation of the air establishment that was conducted by either the existing military services or through civilian government inquiry.

The first evaluation was conducted by officers of the AEF in Paris desiring to record the observations by those who participated or cooperated with the use of air assets in the war. It was headed by Major General Joseph T. Dickman and included officers from all branches of the AEF. Air Service inquiries were conducted by the Air Service's Brigadier General Benjamin D. Foulois. The report essentially confirmed the subordinate role for air forces to army corps, divisions and armies but did reveal a proposal for the creation of a General Headquarters Reserve (GHQ). The GHQ would be established for the conduct of offensive air operations independent of the Army's surface operations. Foulois also concluded that the primary function of the Air Service would be to obtain and transmit information for use by Army commanders. This was not readily accepted by most officers of the Air Service. Notably, Chief of the Air Service, AEF, Major General Mason Patrick concluded that an air force should not be constructed for just the transmittal of information, that pursuit and bombardment aircraft had other vital roles for the Army. He stated that the only restriction to the building of a substantive air force should be a nation's capability to build and use such a force. In the end, this was a minority

opinion. The board concluded that "so long as present conditions prevail . . . aviation must continue to be one of the auxiliaries of the principal arm, the infantry." (Futrell 1989, pp. 27-29)

In Washington, DC, the civilian government proposed that a separate military establishment be created and introduced 8 separate bills to the Congress with this in mind. To reconcile the various opinions on the creation of a separate air arm, the Army finally concluded that another board was required to review the issue. This board was headed by Major General Charles Menoher who was appointed as Chief of the Air Service following World War I. The Menoher Board agreed with those in Congress concerned that the United States' failure to capitalize on the developments in aviation would hamper the nation's ability to properly defend the country. It recommended the creation of a single government agency that would be charged with the research, development, testing, and procurement of military aircraft. The Menoher Board went further to suggest improvements in the development of civil aviation in order to stimulate the growth of national aviation assets. The most influential statement released by the board was a finding concerning the development of a separate air force. It was reasoned that since an air force could not win a war alone, that the creation of an autonomous military service would be counterproductive. This was especially true since the AEF Air Service was not truly capable of fulfilling its cooperative role as supporter of Army ground operations. Because of the importance that a fully developed military aviation service brings to an Army, the Board recommended that its status should be legally preserved as part of the combat line of the Army. Congress complied with the Menoher's Board recommendation and the Army Reorganization Act of 1920 formally established the Air

Service as an Army component with no further changes to either force structure or organization. (Futrell 1989, p. 35)

A final review of this issue was made by then Assistant Secretary of War Benedict Crowell. Crowell's office interviewed members of both the Army and Navy as well as leading industrialists in the United States. Crowell also visited France, Italy, and Britain in an attempt to conduct a full inquiry concerning the creation of a separate air force. His study determined that air power would be as instrumental as sea power in any future conflict. He recommended the creation of a separate Air Force supported by civil agencies encompassing all of civil and military aviation issues. Unfortunately, this was not accepted by the hierarchy at the Department of War, and the report was initially suppressed, and then rejected, by the Secretary of War.

With the Air Service's legal status no longer in question, the development of suitable air doctrine became the focus of Air Service officers under Mitchell's tutelage as the chief of the Air Service's Training and Operations Group. Even if the Air Service was unable to gain service autonomy, it nevertheless attempted to obtain mission independence from surface operations. Employing the best minds from the AEF, the Training and Operations Group was assigned the task of training manual preparation and war plans. Mitchell used this occasion to author a pamphlet entitled "Tactical Application of Military Aeronautics" which stressed the primary mission and secondary employment of of military aviation--the destruction of enemy air forces and the attacking of enemy troops. Mitchell's maverick points of view were clearly in opposition to the War Department's official position. As a result, Mitchell found himself reassigned as assistant Chief, Air Service, with no official duties, and ousted as the director of of the Training and

Operations Group. His best officers were dispersed to other duty assignments and no more original thought on doctrine was produced and certainly none that were contrary to current official Army positions. Because of General Menoher's inability to manage Mitchell and his advocacy of air power, Menoher was replaced by General Patrick so as to restore good order and discipline in accordance with Army standards and traditions.

Under General Patrick's leadership, the Air Service continued its development but with a less confrontational approach. From 1921 to 1926, as General Mitchell drew the ire of Army Leadership, General Patrick became the most effective advocate for air power within the Department of War. Less controversial than Mitchell, he addressed many problems plaguing the Air Service's ability to conduct air operations in fulfillment of national defense priorities. Avoiding the issue of a separate air force, Patrick concentrated on problems that he could fix and those issues necessary for the full development of military aviation. These issues included, but were not limited to:

1. A lack of a unified doctrine for the employment of air power. Between the Air Service and the Army, there were still questions as to the proper role and use of aircraft in war. Although there was agreement to the Air Service's role in supporting surface operations, there was sufficient discussion as to whether this was a primary mission or whether the air battle for superiority had precedence;
2. The poor condition of the American aviation industry. Aircraft production companies could not produce the quantitative requirements for rapid mobilization of the Army. Their facilities were too small and could not

keep pace with existing peacetime requirements and would be unable to fulfill wartime orders;

3. Military procurement policies that inhibited the purchase of new aircraft and equipment until the older ones were used. Although this sounds like good policy, the rapidity at which aviation modernized made much of the older equipment obsolete while stored in reserve. The Air Service required yearly funding and planned modernization programs that upgraded existing equipment or purchased new material outright; and

4. The delineation of air responsibilities with the US Navy. In the 1920s, there was confusion as to where Army aviation ended (at the shore line) and Naval aviation began (over water or at coastal locations). This lack of clarity cause a duplication of effort and waste of money for both services. (Futrell 1989, pp. 39-44)

Realizing that the Department of War and the US Congress were the only institutions that could make the final decision regarding the Air Service, Patrick concentrated on those things that he could accomplish within his command. He pushed for the development of a suitable air doctrine and assigned students at different army schools and air units specific literature projects designed to answer aviation questions. One of Mitchell's fellow officers reassigned from the Training and Operations Group was Major William C. Sherman. Sent to the Air Service Field Officers School in Langley, Virginia, Sherman wrote a manuscript on air tactics. The manuscript was later later revised for use as Training Regulation No. 440-15, entitled, *Fundamental Principles for the Employment of*

the Air Service. His writings would eventually be the first official Army publication indicating a doctrinal foundation for the use of air power. Sherman contrasted the difference between a cooperative air service and an autonomous air force, but recognized that both components of military aviation were subordinate to the existing command structure of the Army. Reiterating Mitchell's views, the air force component's first duty was still described as the destruction of the enemy air force, "wherever it may be found." (Futrell 1989, pp. 40-41)

General Patrick also did not hesitate to make recommendations concerning the Air Service's role in national defense and referring those proposals to his superiors in the Army and the Department of War. Patrick thought that aviation would be served best by the establishment of a Minister of Defense, a unified Commander in Chief of all services, and a unified air force. In 1924, he wrote:

> I am convinced that the ultimate solution of the air defense of this country is a united air force, that is the placing of all the component air units, and possibly all aeronautical development under one responsible and directing head . . . The great mobility of the Air Service and the missions it is capable of performing have created a problem in command, the solution of which is still far from satisfactory. . . . We should gather our air forces together under one air commander and strike at the strategic points of our enemy--cripple him before the ground forces come into contact. Air power is coordinate with land and sea power and the air commander should sit in the councils of war on equal footing with the commanders of the land and sea forces. (Futrell 1989, p. 43)

He also considered that the growth of Army aviation was contingent on the recognition that there were two distinct roles for aircraft--the first being auxiliary support for Army surface operations; and the second being the conduct of offensive air operations. Patrick also recommended that there be a single air commander for all Army

aviation units. This would allow for a concentration of air power to be used to strike at the enemy while the armies from both sides mobilized. Despite his adherence for an autonomous role for these air operations, Patrick did not believe that the separation of the air service from the army was a good idea. He thought that the Air Service should be organized under the War Department as the Marine Corps was organized under the Department of the Navy. (Futrell 1989, p. 43)

Because of General Patrick's non-hostile approach to the problems of the Air Service, he was able to highlight his command's deficiencies to the War Department's hierarchy. This is contrast to Mitchell, whose increasingly strident tone was gathering animosity within the Army, but still continued to capture the imagination of the American public. From 1923 to 1926, the Army's General Staff, the US Congress, and the President all convened official inquiries to hear testimony from the Army and the Air Service, and the Navy, to evaluate the future role of US air power when measured against the present status of the Air Service. All three inquiries, the Lassiter Board, Lampert Committee, and Morrow Board, recognized the growing role that aviation would play in national defense. Unfortunately, the creation of an independent air force or even a more autonomous air service had no value to the Army and Navy. With a lack of a credible air threat to the United States, they believed there was no need for reorganization. Of the three inquiries, the Morrow Board recommendations for the Air Service were the only ones adopted. Congress passed them into law with the Air Corps Act of 1926. US Air Force Historian Frank Futrell describes the changes as follows:

> The name of the Air Service was changed to the Air Corps, the implication being that the Air Corps was capable of independent as well as auxiliary

> operations. An additional assistant secretary of war was authorized to perform duties delegated to him by the secretary, and air sections were authorized in the General Staff divisions. A five-year program for expansion . . . was to be initiated. (Futrell 1989, pp. 50-51)

The passage of this legislation indicates a great leap forward in the evolution of the Air Service to the Army Air Force of the Second World War. It is remarkable in light of the fact that the United States was still isolationist in nature and there was a general belief that the country did not need an air policy or even a defense policy. There is little doubt that the growth of US aviation was stunted by several factors: The demobilization of military forces and aviation industries after World War I; the growing influence of pacifism; the Washington Disarmament Conference of 1922 which limited the growth of military forces; and the government's attention to the economy. United States' politicians believed that they had fought the last war. There was little justification for spending tax money on the continued growth of any military arm. The United States may have loved flying but it was slow in accepting the idea of an autonomous air force, especially within the Army. Fortunately, the intransigence displayed by the War Department and Army General Staff hindered air power development but did not stop it. An excellent example of the slowness at which the Army and the Air Service moved in this decade can be seen in Major Sherman's manuscript on air tactics which formed the basis of early Air Corps doctrine. Sherman wrote the manuscript in 1921. In 1923, it was revised into preliminary form for use as Training Regulation No. 440-15. On January 26, 1926, this regulation was finally accepted as an official policy by the Army. Until the next decade, no further attempts were made to create a definitive air doctrine. (Futrell 1989, p. 50)

2. AAF Doctrinal Development in the 1930s.

With the creation of the Army Air Corps in 1926, the formulation of air doctrine seemingly halted. This was because the Air Corps was part of the Army and could not produce doctrine that was not tied to surface warfare doctrine. Guidance for the use of air assets was contained in Army training regulations and was minimal. New concepts of air power employment were rarely updated. This changed in the 1930s when the Army Air Corps began exploring the possibilities offered by Douhet and Mitchell through professional education and training programs.

The emergence of new air power doctrine began to surface at the Air Corps Tactical School (ACTS). ACTS, located at Maxwell Field, Alabama, grew out the original Air Service's Field Officer School in Langley, Virginia. ACTS was a hothouse of creative thinking. Throughout the 1930s, students and instructors created the air doctrine applied by the Army Air Force in World War II. This was no easy task considering that most of the doctrine was based on the broad views of Douhet and Mitchell. Verification or repudiation of their predictions had not occurred. Since air doctrine represents the specifics of air power employment, ACTS had to determine if air power's core concepts could be applied to modern air warfare.

Major General Haywood S. Hansell, an instructor at ACTS in the 1930s, remembers that air power doctrine was dependent upon fundamental tactical and strategic concepts. He writes:

> The early visionaries and proponents had made great claims for air power. Their strategic concepts all depended upon one basic *tactical* concept accepted by the Tactical School as a fundamental doctrine: bombers could *reach* their targets and *destroy* them. The strategic air power doctrine

fashioned at the of school rested on five fundamental aphorisms:

1. Modern great powers rely on major industrial and economic systems for production of weapons and supplies for their armed forces, and for the manufacture of products and provision of services to sustain life in a highly industrialized society. Disruption or paralysis of these systems undermines the enemy's *capability* and *will* to fight.
2. Such major systems contain critical points whose destruction will break down these systems, and bombs can be delivered with adequate accuracy to do this.
3. Massed air strike forces can penetrate air defenses without acceptable losses and destroy selected targets.
4. Proper selection of vital targets in the industrial/economic/social structure of a modern industrialized nation and their subsequent destruction by air attack, can lead to fatal weakening of an industrialized enemy nation and to victory through air power.
5. If enemy resistance still persists after successful paralysis of selected target systems, it may be necessary as a last resort to apply direct force upon the sources of enemy national will by attacking cities. In this event, it is preferable to render cities untenable rather than indiscriminately destroy structures and people. (Hansell 1986, p. 9-10)

These concepts formed the basis for an air doctrine but there was considerable uncertainty as to the means to implement it. All of the ACTS doctrinal concepts were based on the speculation of air power visionaries. For example, the most contested idea behind much of the pre-radar strategic bombing concept was the idea that bombers would always get through. In 1932, most fighter aircraft were still open cockpit, fixed-gear biplanes. Bombers, however, represented the high end of aviation technology with increased range, payload, and most importantly, speed. It was as fast as a fighter. This meant that bombers could take advantage of surprise, initiative, and mass from which the fighters could not effectively oppose. Bomber invincibility framed the strategic thinking in the Air Corps as to how air assets could be applied to National defense, the Air Corps' strategic purpose in war, and whether the Air Corps' assigned roles fulfilling that purpose.

2. AAF Doctrinal Development in the 1930s.

With the creation of the Army Air Corps in 1926, the formulation of air doctrine seemingly halted. This was because the Air Corps was part of the Army and could not produce doctrine that was not tied to surface warfare doctrine. Guidance for the use of air assets was contained in Army training regulations and was minimal. New concepts of air power employment were rarely updated. This changed in the 1930s when the Army Air Corps began exploring the possibilities offered by Douhet and Mitchell through professional education and training programs.

The emergence of new air power doctrine began to surface at the Air Corps Tactical School (ACTS). ACTS, located at Maxwell Field, Alabama, grew out the original Air Service's Field Officer School in Langley, Virginia. ACTS was a hothouse of creative thinking. Throughout the 1930s, students and instructors created the air doctrine applied by the Army Air Force in World War II. This was no easy task considering that most of the doctrine was based on the broad views of Douhet and Mitchell. Verification or repudiation of their predictions had not occurred. Since air doctrine represents the specifics of air power employment, ACTS had to determine if air power's core concepts could be applied to modern air warfare.

Major General Haywood S. Hansell, an instructor at ACTS in the 1930s, remembers that air power doctrine was dependent upon fundamental tactical and strategic concepts. He writes:

> The early visionaries and proponents had made great claims for air power. Their strategic concepts all depended upon one basic *tactical* concept accepted by the Tactical School as a fundamental doctrine: bombers could *reach* their targets and *destroy* them. The strategic air power doctrine

fashioned at the of school rested on five fundamental aphorisms:

1. Modern great powers rely on major industrial and economic systems for production of weapons and supplies for their armed forces, and for the manufacture of products and provision of services to sustain life in a highly industrialized society. Disruption or paralysis of these systems undermines the enemy's *capability* and *will* to fight.
2. Such major systems contain critical points whose destruction will break down these systems, and bombs can be delivered with adequate accuracy to do this.
3. Massed air strike forces can penetrate air defenses without acceptable losses and destroy selected targets.
4. Proper selection of vital targets in the industrial/economic/social structure of a modern industrialized nation and their subsequent destruction by air attack, can lead to fatal weakening of an industrialized enemy nation and to victory through air power.
5. If enemy resistance still persists after successful paralysis of selected target systems, it may be necessary as a last resort to apply direct force upon the sources of enemy national will by attacking cities. In this event, it is preferable to render cities untenable rather than indiscriminately destroy structures and people. (Hansell 1986, p. 9-10)

These concepts formed the basis for an air doctrine but there was considerable uncertainty as to the means to implement it. All of the ACTS doctrinal concepts were based on the speculation of air power visionaries. For example, the most contested idea behind much of the pre-radar strategic bombing concept was the idea that bombers would always get through. In 1932, most fighter aircraft were still open cockpit, fixed-gear biplanes. Bombers, however, represented the high end of aviation technology with increased range, payload, and most importantly, speed. It was as fast as a fighter. This meant that bombers could take advantage of surprise, initiative, and mass from which the fighters could not effectively oppose. Bomber invincibility framed the strategic thinking in the Air Corps as to how air assets could be applied to National defense, the Air Corps' strategic purpose in war, and whether the Air Corps' assigned roles fulfilling that purpose.

At ACTS, the staff concentrated on the important attributes that the Air Corps brought to the waging of war. It was already accepted that the Air Corps would be used in cooperative operations with surface forces since that was established by official Army policy. The ACTS staff was looking for other original, but decisive methods of waging and winning a war. Since only air power had the capability to wage war outside of the immediate battle area and independent of Army operations, ACTS believed that this was a unique contribution that should be exploited. By attacking an enemy at his vital political, economic, and social centers, the inherent offensive advantages presented by air power could be decisive. This became the basis for power doctrine applied against Germany and Japan in World War II. General Hansell writes:

> The school [ACTS] concentrated its efforts on describing principles and doctrines involved in war with one or more modern, major powers. It accepted as the national strategic purpose the crushing of enemy opposition to the extent necessary for support or attainment of the nation's goals . . . The school claimed that air power could break down the enemy's "will to resist" and "capability to fight" by:
>
> 1. Destroying organic industrial systems in the enemy interior that provided for the enemy's armed forces in the field.
> 2. Paralyzing the organic industrial, economic, and civic systems that maintained the life of the enemy nation itself. (Some of these systems supported both the capability to fight and to sustain a modern social and political structure.)
> 3. Attacking the people themselves, especially those concentrated in the cities. (The school considered this method an undesirable stratagem, one to be adopted only as a last resort.) The school recognized a fourth obligation of air power: the defense of one's own sources of power. (Hansell 1986, p. 11)

Acceptance of new doctrine does not indicate that the Air Corps would abandon its primary purpose in supporting the Army. The Air Corps could not because the US National defense policy required a strict defensive doctrine which was incorporated by

the Army. The Air Corps had no mission outside of the boundaries of the immediate battle area. Furthermore, the Air Corps was restricted by Army doctrine to only those operations ordered by the land forces commander in chief. The US Army was tasked with preserving the territorial integrity of the United States proper and its overseas possessions--not to engage in offensive operations for the purpose of waging and winning war. This notion of offensive doctrine by the Air Corps was in violation of War Department policies and of National Defense policy. Nevertheless, the ACTS staff continued to develop offensive air doctrine throughout the 1930s. Within the Air Corps, this doctrine was accepted and became the basis for AAF strategic bombing campaigns in the Second World War. At the core of this new air doctrine was the idea that a state could paralyze an enemy with the following strategic air missions:

1. Direct attack of enemy armed forces, wherever located, to include local air defenses of military installations;
2. Indirect attack of enemy armed forces through the destruction of industrial elements that supply and support enemy military forces. These targets included electrical power systems; natural fuel power systems and other systems, like transportation, that support it; military factories and arsenals; and civilian war material factories. Also targeted were local interior air defense systems and any installation that manufactures munitions;
3. Direct attack on vital economic and social systems pertinent to the structure of the enemy state and its major supporting systems such as transportation, communication, water, food handling and distribution, etc.

These targets include any systems capable of sustaining enemy armed forces in the field or bolstering a political will to resist;

4. Direct attack on enemy social centers such as cities and factory worker housing areas; and

5. Strategic defense of one's own vital centers. (Hansell 1986, pp. 18-19)

The ACTS air power doctrine resembled the air power visions of both Douhet and Mitchell but was different in two key areas. First, ACTS doctrine did not call for the destruction of entire population centers. ACTS doctrine required organic paralysis whereby the system of war stops functioning as a result of strategic attack. Any attacks conducted against a population center are for the destruction of selected focal points to which the system of war is overly sensitive. This included water and rail transportation, or electrical plants--whatever target, if removed, debilitates or stops the system.

Secondly, ACTS doctrine did not advocate attacking civilian morale requiring the killing of thousands of men and women. Wanton killing, writes General Hansell, "was repugnant to American mores." (Hansell 1986, p. 13) Hansell also notes that from a military efficiency standpoint, people were poor targets because they can move. This mobility allows people to seek shelter from attack, move away, or fight back. The only possible benefit derived from bombing civilian populations would be to force a mass evacuation of cities. This manpower drain from cities might limit war industry output.

3. Synopsis

This section covered the development of air power doctrine within the organizations that preceded the AAF in World War II. Both the 1920s and 1930s were reviewed

to distinguish two periods of growth with regard to doctrine. In the 1920s, the arguments for the establishment of a separate air force were based on the theories of Italian Giulio Douhet and American Billy Mitchell. In these arguments, the foundations of air power doctrine and strategic employment of aircraft were made. Because of interservice rivalry and the superior relationship between the Army and its Air Service, the fight for an independent air force was lost and the creation of a written doctrine did not occur. The Air Service was able to evolve slowly from its its quasi-legal status as the AEF in World War I to its incorporation as an Army branch in 1926, equivalent to the infantry, artillery, and cavalry.

This is in contrast to the 1930s where the Army Air Corps Tactical School developed air doctrine outside the realm of Army leadership and established Army surface warfare doctrine. Although the question of service autonomy was mostly settled in 1926, the quest for an independent war winning doctrine for air forces did not stop. At the Tactical School, faculty and students developed the strategies and methods of air power employment. A new air doctrine was created that called for strategic air attacks of selected targets requiring sustained, daylight, high-altitude, precision bombing. As it was with the other Air Forces throughout the world, there was no practical implementation of either doctrine or air power theories until World War II. In the United States, this occurred because there wasn't sufficient force structure or organization within the Air Corps to conduct any experimentation in support of the strategic air mission. The following section will evaluate AAF organization and force structure as it related to the development of doctrine in the years prior to the Second World War.

D. AAF ORGANIZATION AND FORCE STRUCTURE

The organization and force structure of the Army Air Corps in the 1920s and 1930s cannot be neatly separated for analysis. In the years after the establishment of the Air Corps, senior Army leadership decided where money was to be spent for each of its branches of service. As it was constituted in 1926, the Air Corps had little say in the amounts of money it could spend and how it could spend it. Certainly it was not in fulfillment of the air power doctrines developed at the Air Corps Tactical School. Unless the Air Corps achieved more organizational autonomy, and therefore more importance within the Army hierarchy, the Air Corps' force structure could not expand in meaningful ways. Both organization and force structure were dependent on how the Army viewed the significance of air power to national defense, therefore this section will concurrently review both aspects of the Air Corps prior to its expansion in the 1930s.

In the two decades prior to World War II, the United States air forces evolved slowly from the Air Service, AEF to the Army Air Corps in 1926. More evolutionary changes became necessary in the 1930s because international events presaged the coming of another war where air power would be significant. As compared to other air forces in other countries, the US Army Air Corps was woefully undersized and unprepared. In the United States, the Great Depression was correctly the focus of national leadership where all aspects of society were affected by the feebleness of the national economy. The military establishment found that their equipment, personnel, and training suffered for lack modernization funding. Force structure and organization in most units of the Army was inadequate for the conduct of national defense objectives, including war. The Air Corps was affected most directly because sustaining a viable air force is very expensive

and there was little money. In addition, the 1926 Army aviation expansion program caused other Army branches to suffer losses in troop strength to build up the Air Corps to less than acceptable force levels. In 1933, Army deputy Chief of Staff, Major General Hugh Drum convened a board to reprioritize Army expenditures and develop a more efficient plan for Air Corps expansion. The Air Corps, like the rest of the US military, was in poor shape. Authorized 1,800 aircraft, the Air Corps possessed only 1,619, of which 442 were obsolete. To remedy the situation, the Air Corps submitted two requests, both of which were approved by the Drum Board:

1. A request for continued expansion of it force structure to 2,320 total aircraft consisting of 27 bombardment, 17 pursuit, 11 attack, and 20 observation squadrons; and
2. The creation of a General Headquarters (GHQ) Air Force for use against potential invaders as part of the national defense plan. (Futrell 1989, p. 68)

With the creation of a GHQ Air Force, Air Corps leadership envisioned the means to conduct long range bombardment missions as detailed in their developing doctrine in support of national defense plans. Unfortunately, the War Department approved the recommendations of the Drum board but delayed implementation of force structure increases until the remainder of the ground units were at recommended strength levels. The GHQ Air Force was created and viewed as an improvement to previous force employment of the Air Corps. The Air Corps agreed and wasted no time testing the new organization, using the GHQ Air Force in training maneuvers in 1933.

Even with the Drum Board's recommendation, the Air Corps was a marginally capable air force. This was tragically highlighted in 1934 when President Roosevelt directed the Air Corps to fly the nation's air mail. Underscoring years of neglect, the Air Corps conducted the operation with poor equipment, no proper ground support organization, and in bad winter weather. The Air Corps suffered 57 accidents and 12 dead between February 19 and May 8, 1934. (Coffey 1986, p. 223) This incident prompted the Secretary of War to convene another committee to determine the adequacy and efficiency of the Air Corps. This board was headed by Newton D. Baker but it did little to improve the situation of the Air Corps except to endorse the findings of the Drum Board. The Baker Board rejected the concept of independent strategic warfare as being against our national defense policy. The final report stated:

> Our national defense policy contemplates action against no nation; it is based entirely upon defense of our homeland and overseas possessions. . . . The idea that aviation can replace any of the other elements of our forces is found, on analysis, to be erroneous. . . . Since ground forces alone are capable of occupying territory, or with certainty, preventing occupation of our own territory, the Army with its own air force remains the ultimate decisive factor in war. . . . the ideas that aviation, acting alone, can control the sea lanes, or defend the coast, or produce decisive results in any other mission contemplated under our policy are all visionary, as is the idea that a very large and independent air force is necessary to defend our country against air attack. (Futrell 1989, p. 70)

Even with this very open rejection of an autonomous air force, the GHQ Air Force was created to be a cohesive strike force of the US Army. The GHQ had a unique organizational set-up where it was directly responsible to the Army Chief of Staff in peace while responsible to the GHQ Commander, an Army General, in times of war. The GHQ Air Force was viewed three ways in the Army. Some saw it as an aviation reserve

pool where aviation assets would be parceled out to army units requiring air support. Others saw the GHQ Air Force as a combined strike force for use in advance of Army ground battles--this is similar to the *Luftwaffe* concept in *Blitzkrieg* warfare. To the airmen, the GHQ represented a unique strike force capable for use beyond the immediate battle area as well as in direct support of the Army in battle. The GHQ Air Force was to be used as a weapon of air power and unrestricted in its application. (Hansell 1986, p. 17)

In 1938, President Roosevelt was convinced of the importance of aircraft and air power to the nation's defense. He believed that air power could influence aggressive states, like Hitler's Germany, and sought an increase in aviation force structure to an unheard of 20,000 aircraft. In the same manner as Great Britain, Roosevelt reviewed intelligence reports on *Luftwaffe* aircraft strength and found the Air Corps lacking in both airplanes and personnel. The Air Corps responded to Presidential inquiries with a study to determine the appropriate size and composition of an expanded Air Corps for national defense. The Air Corps submitted a plan for 5,500 aircraft at a cost of $500 million. Congress finally authorized a $300 million package for the Air Corps consisting of a total aircraft strength of 5,500 with the purchase of 3,251 new aircraft. (Futrell 1989, p. 91)

Because of the planned rapid expansion of the Air Corps, the GHQ Air Force was placed under control of the Air Corps Chief of Staff. This was due to the triple increase of the Air Corps combat strength and the difficulties of maintaining both unity of purpose and planning for that expansion. Furthermore, the Air Corps could now more fully develop the force structure sufficient to fulfill its doctrine and still achieve national defense policies. The Air Corps started by determining the expected overall force structure for the expanded Air Corps. This resulted in a force structure composed of 24 Air

Groups to include 5 heavy, 6 medium, and 2 light bomber groups followed by 7 pursuit interceptor and 2 pursuit fighter groups, with 1 composite group in the Philippines. Observation squadrons were meted out to the corps and division levels of Army units. Table 9 shows the initial orders for Air Corps expansion from 1938 to 1939. Note that the higher number of aircraft purchased were bombers, a ratio of just under 2 to 1. Most likely this was the first indication that the basis for US air power was the bomber aircraft.

Initial Aircraft Orders for Air Corps Expansion, 1938-1939

Aircraft Type		Quantity	Totals
Heavy Bombers	B-17	--70	**Bomber Totals = 676**
	B-24	--16	
Medium Bombers	B-25	--183	
	B-26	--201	
Attack Bombers	A-20	--206	
Pursuit Interceptors	P-38	--66	**Fighter Totals = 361**
	P-39	--95	
	P-40	--200	

Table 9. Initial Aircraft Orders for Air Corps Expansion, 1938-1939
Source: Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force 1907-1960,* 1989.

As the Air Corps expanded to meet US national defense needs, the war in Europe started. The Air Corps doubled its efforts to create a basic doctrinal manual as well as to prepare the itself for war. Part of that preparation included the evaluation of the air

battles fought over Poland, France, and Britain. The majority of the air theories regarding the first air battle and the primacy of establishing "Command of the Air" were validated in all operations. What was troublesome to American observers was that the Battle of Britain clearly demonstrated bomber "vulnerability" rather than "invincibility" because the quality of British pursuit aircraft so outperformed the German bombers. In addition, the *Luftwaffe* fighters were unable to make a significant difference in the battle because of their limited range. This highlighted the need for escort fighters in the face of Air Corps commitment to strategic bombing. Unfortunately, fighters of sufficient range to accompany bombers to target areas were not yet developed by any country.

In the Air Corps, the commitment to heavy bombardment of selected targets was not diminished. An Air Corps observer in Britain reported back that the *Luftwaffe* was suffering because it required long range bombers to be effective, but had none. The *Luftwaffe's* bombers also lacked adequate firepower for defense and carried insufficient bomb loads. Relying heavily on British insight as to the fallibility of the German air attacks, the observer also noted that "the German fighters will not attack a well-closed-in day-bombing formation." (Futrell 1989, p. 99) German bomber losses were explained by noting that the British aircraft possessed superior fire power in the face of poor hemispheric gun defense, particularly to the rear of the aircraft, and a lack of good air discipline--unable to fly tight formations over the target for maximum impact. The Air Corps, believing it was on the right track, expanded its force structure a second time.

After the fall of France in July 1940, new Secretary of War Henry Stimson authorized increasing the Air Corps to 54 combat air groups and 16 transport air groups. This new expansion was called the First Aviation Initiative and enlarged the force struc-

ture to 4,006 combat aircraft. In October, 1940, during the waning days of the Battle of Britain, Army Chief of Staff, General George C. Marshall authorized the planning for more expansion under the Second Aviation Initiative. This expansion increased combat air groups to 84 with an authorized strength of 7,799 aircraft. (Futrell 1989, p. 102) Table 10 shows the Air Corps force strength as a result of the Second Aviation Initiative.

Authorized Air Corps Force Structure, Second Aviation Initiative, 1941

Aircraft Type	Quantity	Totals
Heavy Bombers	1,520	***Bomber***
Medium Bombers	1,059	***Totals = 3,349***
Light/Dive Bombers	770	
Pursuit Interceptors	2,500	***Pursuit***
Pursuit Fighters	525	***Totals = 3,025***
Observation/ Photo/Liaison	806	
Transport	469	***All other***
Amphibian	150	***Totals = 1,429***

Table 10. Authorized Air Corps Force Structure, Second Aviation Initiative, 1941. Source: Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force 1907-1960,* 1989.

With the Air Corps and GHQ Air Force expanding under both Army aviation initiatives, the Air Corps staff experienced difficulty getting administrative or command

support from the Army General Staff. General Marshall also noticed that other Army commands suffered the same difficulty with the slowness that the General Staff moved with every problem. In order to de-centralize command lines with the combat commands of the Air Corps and other Army commands, Marshall created the GHQ US Army. Under this arrangement, the GHQ Air Force was to reorganize as a subordinate unit within the GHQ US Army. To Air Corps Chief of Staff, General "Hap" Arnold, this was an unacceptable arrangement since the Air Corps would lose it needed centralization of all air assets to accommodate its expansion programs. General Arnold prepared a study explaining this point but was overruled by the War Department General Staff for the following reason:

> The Air Corps believes that its primary purpose is to defeat the enemy air force and execute independent missions against ground targets. Actually, its primary purpose is to assist the ground forces in reaching their objective. (Futrell 1989, p. 103)

The situation was resolved outside of the General Staff by General Marshall who appointed General Arnold as deputy Chief of Staff for Air with Secretary of War Stimson appointing Robert Lovett as special assistant for air matters. The GHQ Air Force expanded with the new air combat commands formed geographically for the defense of the United States. Major General George Brett was appointed as Chief of the Air Corps, replacing Arnold. These changes, however, did not make the relationship between the General Staff and the Air Corps move any smoother. In order to create a new non-conflicting command relationship between the General Staff and the Air Corps, a final reorganization was accomplished based on events in Great Britain. RAF success against the *Luftwaffe* provided an organizational argument for greater Air Corps autonomy.

Air Corps observer to Great Britain, Brigadier General Carl Spaatz noted that RAF organizational superiority was a significance factor in the winning the air battle with the *Luftwaffe*. He wrote in a February, 1941 report that a "numerically inferior air force has been phenomenally successful in stopping the unbroken chain of victories of the world's strongest air power." (Futrell 1989, p. 103) The key to the RAF victory was in their centralized command system where all aspects of air power employment were controlled by airmen in pursuit of air objectives. The Air Corps prepared a study so as as to adopt the better features of RAF command structure for use with American air units. This resulted in a final reorganization of the Air Corps that created the Army Air Forces, by implementation of Army Regulation 95-5. This regulation permitted the coordination of Air Corps Staff activity with the staff activities of the Air Force Combat Command (formerly the GHQ Air Force). Under the leadership of General Arnold, an Air Staff was created in Washington DC to centralize all air planning efforts. The Army Air Force (AAF) was finally established, and with it, a degree of autonomy for the conduct of independent air missions.

Through the newly created Air Staff, the planning began for developing an aerial defense for the United States. In July, 1941, President Roosevelt requested information concerning personnel/material requirements for defeating "potential enemies." This resulted in the creation of AWPD-1, Air War Plans Division-1, also known as "Munitions Requirements of the Army Air Force." AWPD-1 outlined a planned application of air power designed to breakdown the industrial and economic structure of Germany according to air power doctrine developed at the Air Corps tactical School. AWPD-1 acknowledged the requirement to defeat German air power as a precursor to an allied invasion--a

absolute necessity for victory in Europe. Pursuit of this strategy entailed the creation of an air force that had not been produced anywhere in the world. The plan required a force of 61,800 total aircraft operated and maintained by 180,000 officers and 1,985,000 enlisted men. This is remarkable in light of the fact that in 1940, the Air Corps' total personnel strength was only 51,000. AWPD-1 called for a 42-fold increase to 2,165,000 personnel. In 1940, aircraft numbered only 6,000, with close to half of them obsolete. This new plan called for an approximate 20-fold increase in aircraft, excluding obsolete airplanes. It also required the production of 59,400 aircraft per year to sustain combat losses. (Hansell 1986, p. 39) Table 11 details AWPD-1 force structure requirements.

AWPD-1 Military Aircraft Production Requirements, 1941

Aircraft Type	Quantity	Totals
Heavy Bombers	9,775	***Operational and***
Medium/Light/ Dive Bombers	3,244	***Combat Aircraft***
Escort Fighters	2,000	***Totals = 24,748***
Fighters	6,748	
Reconnaissance	1,917	***Military Aircraft***
Transport	1,064	***Totals = 61,799***
Trainers	37,051	

Table 11. AWPD-1 Military Aircraft Production Requirements, 1941.
Source: Major General Haywood S. Hansell, Jr., *The Strategic Air War against Germany and Japan*, 1986.

With this final force structure and new organization, the Army Air Force prepared for war. The war started unexpectedly, on December 7, 1941, in the form of an air attack on Pearl Harbor. The AAF planned for war with Germany, and found that this would occur despite the Japanese action in the Pacific as the United States adopted a "Europe First" strategy when Hitler declared war. In both theaters of operations, the viability of US air power doctrine would be tested--first in the skies over Germany, and then with utter devastation in the skies over Japan. The following section will review the Army Air Forces' application of air power in the the United States' war against the Axis nations in World War II.

E. EVALUATION OF AMERICAN AIR POWER EMPLOYMENT

In contrast to the British Royal Air Force, the Army Air Forces deployed to Europe in World War II with a different strategic bombing doctrine. Although there was agreement as to the purpose of strategic air attacks, the AAF was determined to validate its belief in daylight, high altitude precision bombing of selected vital targets. For AAF strategic planners, this was determined to be electrical power, transportation, and petroleum production plants within German occupied areas. The AAF arrived in Britain in increasing numbers starting in July, 1942 with two heavy bombers: the B-17 and B-24. The key for successful completion of the AAF bombing mission rested on the superiority of their equipment and trained aircrews. The aircraft were designed for long-range attack and outfitted with the highly precise Norden bombsight, which made accuracy possible for crews that flew a steady drop platform. The aircraft were further equipped with a host of .50 caliber machine guns for protection against the German air forces. Also included to protect the bombers were AAF fighter aircraft, deployed to accompany bomber forma-

tions in the early bombing raids over France. Initial missions garnered favorable results, especially when combined with the nighttime missions of the RAF. All aspects of a general air bombardment strategy were used to bomb industrial centers by day, and population centers by night. After diversionary missions to support the Allies' North African campaign and maritime missions against German submarine bases in France, the AAF daylight bombing efforts into the heart of Germany began in the summer of 1943. Unfortunately for the AAF, German fighter resistance and in-depth air defenses denied the successful implementation of this doctrine. Daytime bombing suffered a terrible defeat at the Ploesti oil fields; the AAF 8th Air Force losing 54 out of 177 B-24s. Also lost were 532 aircrew. (Doolittle 1991, p. 334) At the cities of Regensburg and Schweinfurt, losses were again extremely high when the AAF attacked German ball bearing plants. A flight of 228 bombers incurred losses of 62 aircraft destroyed and 138 damaged. (Leckie 1992, p. 792)

The underlying message to AAF air commanders was that the margin of superiority of offensive air strategies was slightly better than that of defensive ones. To continue raids into Germany, the AAF required escort fighters to prevent the *Luftwaffe* from destroying the entire war making capability of the AAF. In December, 1943, the P-51 fighter arrived in Europe with sufficient range--due to jettisonable external fuel tanks, to engage German fighters as they rose to engage 8th Air Force bombers. This made a vast improvement in bomber mission success. At first, the escort fighter was limited to defensive roles in their protective status for the bombers. They were not permitted to leave bomber formations in pursuit of enemy aircraft. This changed in the opening months of 1944, when the 8th Air Force's new commander Major General James H.

Doolittle, authorized the fighter forces to take offensive action against the *Luftwaffe*. AAF fighters were to chase down and attack the *Luftwaffe* at their airfields, and anywhere else in the sky that they could destroy German aircraft and eliminate bomber opposition. (Doolittle 1991, pp. 352-353)

Doolittle's decision proved to be the difference in the air war over Europe. In February, 1944, he conducted missions against Germany where the 8th and 15th Air Force's purposely launched massive amount of bomber formations in an effort to draw out the German fighters. AAF fighters engaged German fighter aircraft wherever they could encounter them. Doolittle writes that they:

> had launched 3,800 sorties against all combine bomber offensive targets with a loss of 226 bombers and 28 escorting fighters. Our bomber loss rate was 3.5 percent, compared with 9.2 percent in October 1943--still high when you consider the number of men aboard those planes. . . . What hurt the Germans the most was the deterioration in the experience levels of their pilots. The Germans lost an estimated 434 pilots during the "big week," out of a total strength of 2,200. (Doolittle 1991, p. 367)

Original AAF doctrinal prerogatives called for the strategic bombing campaign to achieve the destruction of vital centers when conducting the air war. Throughout 1944 the AAF continued attacking aircraft plants, ball bearing factories, and enemy fighters but found that German resistance was resilient. Strategic bombardment did not destroy the German economy, but it enfeebled it for the allied invasion later that summer. It is also important to note that by June of 1944, the Allies had achieved a 30 to 1 air superiority in aircraft quantitative strength prior to the D-Day landings. (Leckie 1992, p. 794)

Of equal importance it the fact that the majority of bombs dropped by the AAF in Europe were put on combined industrial and transportation targets. The AAF dropped

595,658 tons (63%) of bombs on these targets with only 131,986 tons (20%) dropped on cities. The remainder of the bombs were dropped on tactical targets. Reviewing the European strategy of strategic bombardment, the AAF remained true to its doctrine and purposely avoided the missions designed to crush civilian morale. This did not occur in the other theater of war against the Japanese. Excluding the atomic bombs dropped in August, 1945, the XXI Bomber Command of the Twentieth Air Force, flying long range B-29 bombers from the Marianas islands in the Pacific, firebombed the Japanese mainland. Over 178 square miles of Japanese cities were destroyed by fire storms. (Drew and Snow 1994, p. 173) In this decidedly inhumane approach, the Army Air Force obliterated the Japanese capacity for waging war while simultaneously killing large numbers of civilians.

The initial plans for an air offensive over Japan was prepared by the Air Staff in 1943. Because of the long range and increased bomb carrying capability of the B-29 bomber, the mission and command structure of the B-29 units were controlled by General Arnold in Washington DC. The Twentieth Air Force was created for the single purpose of applying strategic bombing doctrine to the Japanese mainland. The Twentieth was established first in the India-China Theater of war but found its operations hampered by location. In order to bomb Japan, missions required a very long and costly logistics tail that stretched back over the Himalaya mountains in Tibet. This was in addition to the B-29's increasing maintenance and operational difficulties. Not very many of the bombers could find their primary targets and many more experienced mechanical difficulties which kept their aircraft grounded. Overall, results were lackluster.

The Twentieth established another bomber command, the XXI Bomber Command to accompany the XX in operations over Japan. The XXI was stationed in the Marianas Islands in the central Pacific Ocean. While the new location provided many logistical advantages not available to the XX Bomber Command in India, deficiencies in aircrew training and aircraft equipment continued.

The B-29 aircraft was designed to bomb at altitudes in excess of 30,000 feet with the same accuracy as the smaller B-17 and B-24 bombers in Europe. Unfortunately, the B-29 bomb sight and radar navigation techniques were not as accurate. This was exacerbated by the jet stream over Japan--a continuous 100 to 150 knot wind right over the Japanese mainland. The jet stream made fuel critical B-29s ditch in the ocean due to the loss of available range. The jet stream also affected the trajectory of dropped bombs by blowing them off course. This occurred mostly because the B-29 bomb equipment could not handle excessive wind drift indications caused by the high winds aloft. Also hampering the bomber's operations were its notoriously temperamental engines. Their sensitivity often led to mass mission aborts of B-29s, resulting in poor bombing results. Finally, the B-29 aircrew were experimenting with radar bombing techniques on a new aircraft. they required training to become more proficient in the aircraft's mission, however, while this was occurring, substantive bombing raids were not being conducted. This means that the large massed bombing formations containing hundreds of bombers could not be launched.

Fortunately for the AAF, the capture of the Marianas Islands allowed both the XX and XXI Bomber Commands to consolidate their operations at one location. This only solved some of the logistical problems of the Twentieth as the inability to conduct

substantive bombing raids continued. This changed in the early months of 1945 when Major General Curtis LeMay arrived from India to command the Twentieth at Guam. LeMay was the former commander of the XX, and was brought to Guam to produce results from the B-29 operations. In a remarkable command decision, LeMay abandoned the AAF precision bombing doctrine and used RAF area bombing techniques to drop incendiary bombs on Japanese cities.

The reasoning behind his decision was that these missions, if successful, would curtail the war. Since Japanese industry was a cottage industry--spread out in the cities, and one supported by some large factories, the incendiaries would cause a conflagration which would engulf not only the factories but the little shops as well. If sufficient amounts of both were destroyed, as well as displacing the civilians ability to work, then the war would be shortened. General LeMay knew that civilians would die, but this was in the face of American lives that might die if an invasion was completed. The missions were ordered to be flown with subtle modifications to the flight profile and crew complements.

LeMay abandoned the high altitude bomb profile in favor of massed formations at 5,000 and 6,000 feet. This was done to ensure the accuracy of the bomb drop into a tight area, thereby increasing the fire potential of all bomb loads. The extra weight of gunners and their ammunition was scrapped for extra fuel and more fire bombs. LeMay ascertained that Japan's air defenses were nonexistent and unlikely to engage his bombers. On February 25, 1945, LeMay started his attacks on Tokyo and was pleased when the first raid burned one square mile with bombs dropped at 25,000 feet. (Coffey 1986, p. 149) On March 9th, he launched the notorious Tokyo raid that is still the most devastating air

mission ever accomplished. With his bombers at 8,000 feet, 16 square miles of Tokyo were burned to the ground. In conducting fire bombing raids, the most inhumane form of aerial bombardment, LeMay discovered the means to fulfill air power's ultimate objective--the ability to end an enemy's capability to wage war. From May 23, 1945 to June 15, LeMay's bombers burn 41 square miles of Japanese cities. Major General Hansell, details the damage caused by the B-29 raids:

> On the basis of photo coverage, intelligence estimated that 175 square miles of urban area in 66 cities were wiped out. Total civilian casualties stemming directly from the urban attacks were estimated at 330,000 killed, 476,000 injured, and 9,200,000 rendered homeless. There were 2,210,000 houses demolished or burned down and another 90,000 were partially damaged. This bombing "dehoused" 50.3 percent of the 1940 population of these cities. A total of 159,862 tons of bombs was dropped. Japanese casualties resulting from strategic air attack, from all causes was estimated at 900,000 deaths and 1,300,000 injured. (Hansell 1986, p. 256)

After the dropping of the atomic bombs, it was apparent to the Japanese that they were faced with the ultimate terror of a successful air attack. Japan, more than any other nation in World War II, faced either extermination or capitulation in the severest of terms. Japan surrendered but not without this interesting historical note. It did so without a single enemy troop present on Japanese soil. (Hansell 1986, p. 257) Japan surrendered with 2.5 million men still in arms and with 9,000 flyable aircraft stationed on the mainland. In the history of modern warfare, that is still unheard of.

F. CONCLUSION

In reviewing the development of the US Army Air Forces, one realizes that the central theme to this organization was the concept of strategic bombardment. Starting with the strident advocacy of Billy Mitchell and the bold visions proposed by Douhet, the

air forces employed by the United States were clearly committed to a prophetic view of armed conflict where an autonomous air force would dominate the skies. Domination of the sky would permit total domination of the earth's surface so that war would not return to the degenerate ground campaigns of World War I. This would be accomplished by taking the battle to the centers of an enemy's power and attacking him there. Only a weapon as versatile as an aircraft could accomplish that strategic mission. As a method of waging war, it was the most pragmatic and rational approach that promised to shorten conflicts by rendering quick, explicit decisions. Unfortunately, the idea of an air service was anathema to the established United States Army.

The Army was extremely persistent in retaining its air forces but then spent scant attention developing its air power potential. This resulted in an organization with an extremely poor force structure and no formal doctrine detailing its proper employment in battle. As international events caused the reevaluation of military preparedness in the 1930s, more attention was given to the role that military aviation would play in the upcoming conflict. In the 1920s and 30s, the Army Air Service was expanded, first to an equivalent Army branch as the Air Corps, and then to a semi-autonomous Army Air Force just prior to World War II. With each expansion, Army air force officers continued to develop air doctrine that was based on strategic bombing and did not conflict with America's moral base. The doctrine required the strategic bombing of vital centers that were militarily relevant to the destruction of an enemy's capacity to wage war. Civilian populations were not primary targets for the American air forces. This variation of strategic bombing was thought to present a more humane approach of bombing selected industrial and economic centers. To this end, the daylight, high altitude, precision

bombing mission was used to achieve maximum efficiency under the guidance of Army Air Force doctrine.

In Europe, the application of AAF doctrine suffered many setbacks until the production of suitable escort fighters. After the escorts were employed, German air defenses and the *Luftwaffe* were unable to turn back AAF bomber formations and the allied air offensive began to get results. From a practical viewpoint, the AAF remained true to its doctrine and reaped the benefits of its concerted bombing efforts with the RAF. In the air war over Japan, this was not true. The Twentieth Air Force under General LeMay, seemingly rejected AAF doctrine and sought conclusive results from a previously lackluster bombing campaign. Relying on precision attacks using B-29 bombers proved fruitless as insufficient bomb loads, carried by marginally capable aircrews and aircraft, caused insignificant damage. The bombing results also tended to be scattered by the jet stream and poor weather over Japan. This hampered a crew's ability to navigate to target areas and bomb with acceptable accuracy. In an effort to produce results quickly, and in the face of a planned invasion of Japan, the Twentieth Bomber Command was faced with the same decision the RAF had after the Battle of Britain: the use of area bombing techniques as a means to carry the war to enemy soil. In the Pacific, however, the AAF added a new twist when they used incendiary bombs, dropped at low altitudes, to cause as much devastation as possible. In Japan's predominately wooden cities, this would be catastrophic because the resulting conflagration would not only destroy targeted war production capability, but everything else as well.

The final tally of dead, injured, and homeless indicate that the Twentieth Air Force incendiary bombing campaign was without mercy and bereft of humanitarian

considerations. The numbers are even more incredible when one considers that the statistics omit the dropping of two atomic bombs. The decision to use incendiary bombs, however, was not driven by a desire to kill civilians, but by a commitment to bring the war to an end quickly and without the additional loss of American lives. But what of Japanese lives? Few would argue that a bomber force should bomb as accurately as possible given their capabilities and the nature of the opposing forces. It is quite another argument to state that because one cannot bomb selected targets precisely, that they are then correct in obliterating large sections of cities containing those targets to ensure their destruction. How large an area defines the difference between "discriminate" versus "indiscriminate?" Where are the lines drawn when the commingling of military and civilian establishments and activities are so pervasive so as to make them indistinguish-able? When so many Japanese are burned to death, is the saving of American lives or the argument for military effectiveness the correct rationale for the results of the bombing?

Against this cry for humanitarian restraint, there are important considerations to ponder. There is an underlying moral assertion that efficient brutality during a war will shorten the conflict. Also, a moral, but brutal, campaign can be rationalized when one is attacked unjustly. (Parks 1992, p. 353) The advent of air power allowed the reality of efficient brutality to be joined with the morality of a brutal retaliation. This argument presents a moral and legal foundation for the bombing operations based on the fact that the United States did not start the war and that Twentieth Air Force incendiary operations would end the war quickly. This is at the very center of the United States' strategic bombing doctrine because the theories advocated by Mitchell and Douhet laud air power's ability to render swift, decisive victory. At the core of air power doctrine is the promise

of a short war. Air power is the negation of World War I warfare where the battles exhausted humanity in piecemeal fashion. Until the rational development of air power to the fiery levels applied against Japan, the fulfillment of air power's promise to shorten conflict was not yet real. The capstone achievement in reducing warfare to its absolute minimum was the atomic bomb. The bomb made certain that Japan's options were very clear: either capitulation or extermination. It is the final irony in a war that they started, but were unable to finish.

VIII. CONCLUSION

> *It is customary in democratic countries to deplore expenditure on armament as conflicting with the requirements of the social services. There is a tendency to forget that the most important social service that a government can do for its people is keep them alive and free. J. C. Slessor*
>
> *A nation, regardless of its protestations, if it feels that its national existence is threatened and that it is losing a war, will turn to any weapon that it can use. Walter Bedell Smith* (Westenhoff 1990, pp. 70,73)

The purpose of this thesis was to examine the external actions of democratic states and determine if their conduct supported the expected behavior suggested by the democratic peace theory. This was accomplished by evaluating the arguments behind the theory in search of the most compelling line of reasoning that explains why democracies are peaceful international actors. This compelling argument was then accepted as the foundation for expected democratic state behavior and used as a point of departure for evaluation of actual democratic state conduct.

The argument for democratic peace establishes a causal link between the culture, perceptions, and practices of democratic societies and democratic peacefulness. A democracy's culture, perceptions, and practices create the conditions that allow for nonviolent, internal conflict resolution. These democratic conditions are manifested externally when a democracy interacts internationally. To test for this democratic peacefulness, it was imperative to evaluate the manner in which states behave toward other states. Using E. H. Carr's model of interstate interaction, it was determined that states act internationally when they have the interest and capability to do so in three distinct ways: militarily,

economically, or in the shaping of opinion. To appropriately test for the democratic peace, an examination of one of these areas should reveal whether a democracy will behave in the manner prescribed by the Democratic Peace Theory.

The military aspect of Carr's model was selected because a state's military capability determines the final outcome of any hostile interaction, and to a greater extent, the ability to act at all. In examining a democracy's military establishment, it was necessary to forge the link between expected democratic state behavior and manifestations of actual external behavior. This was accomplished by acknowledging that a state's use of military force is always as Clausewitz stated, a political act,. It is also acknowledged, however, that military force is a cultural act where society sets the boundaries of acceptable conduct in peace or war. If politics determines the "why" of an action, then culture determines the "how." Within the military realm of state interaction, the only area where the political and cultural aspects of state action are linked is in the formulation of national strategy.

A component of national strategy that determines the appropriate application of national instruments in the exercise of power is military strategy. The manner in which that instrument is wielded is a reflection of military doctrine--a belief based upon historical evidence as the best way to do things. Therefore, the test for democratic peacefulness should be founded in an examination of one aspect of military doctrine. The development of air power doctrine was selected with a test period from the end of World War I to the conduct of air operations in the Second World War.

Air power doctrine was chosen because it was founded on a state's belief in the proper way to conduct air operations. The development of air power doctrine was also

subject to the influence of a society's culture, perception, and practices as a part of national strategy. Since these influences form the definitive argument for the democratic peace theory, it is possible to examine the doctrine and its eventual application to see if it supports the theory of democratic peace or runs counter to it. The interwar years were the appropriate time frame for reviewing the doctrine because the 1920s and 1930s gave all major states the same foundation, based on the shared historical experiences of World War I, to develop air power doctrine bounded only be what they believed was right. The development of air doctrine and the application of air power in World War II was the manifestation of those beliefs.

The examination of external democratic behavior regarding the development and use of air power was conducted with these three democracies: France, Great Britain, and the United States. All three historical analyses were framed by the same questions:

1. What air power theory was advocated?
2. How did the theory manifest itself in the development of doctrine?
3. Did the force structure match the doctrine? and
4. How did the country employ air power?

The case study analyses revealed that both Great Britain and the United States applied air power in World War II in a most inhumane manner when they conducted area bombing of civilian populations. In its most heinous form, Britain and the United States also firebombed cities to destroy the enemy's capacity to wage war. Blocks of Japanese and German cities were targeted because they contained factories and businesses directly

linked to the production of war material. These portions of the cities were carpet-bombed to eradicate war production facilities, leading to the collateral and indiscriminate killing of non-combatants. Not only did this behavior *not* conform to the expected democratic state conduct as proposed by the Democratic Peace Theory, it also deviated from the democracy's air power doctrine.

This highlights the most important point of the case study analyses. The development of air power doctrine in all three states conformed to the tenets of the Democratic Peace Theory. The development of air power doctrine was influenced by each state's culture, perceptions, and practices in which there was respect for human life and a repugnant attitude toward the bombing of civilians. In was very apparent in French air doctrine because they chose not to conduct strategic attacks against Germany for fear of international condemnation, as well as for fear of reprisal attacks against their own population. Early British doctrine targeted the industrial and transportation centers for the purpose of rendering useless the enemy's capacity to wage war. It was acknowledged that the bombing would induce a collateral diminishing of German morale, but the civilian was not supposed to bear the brunt of aerial assault. Upon entry in the war, the United States refused to abandon its daylight, precision bombing doctrine in Europe, even when suffering unacceptably high losses caused by the *Luftwaffe*. The AAF continued with its assault on industry in order to induce the strategic paralysis of German capacity to wage war. It was a minimalist strategy designed to cripple the German war effort in the most efficient manner possible with a minimal loss of life.

These three democracies held that air power should only be used against targets that are militarily relevant in accordance with their doctrines. To that end, their early

application of air power in war reflected respect for the non-combatant status of the enemy civilian. In all three case studies, air power doctrine illustrated the *intent* of democratic state air power application. All three democracies intended to wield air power in either a defensive or deterrent capacity while stressing the offensive nature of their air operations. This included considerations for civilian populations.

Were the case study analyses to stop here, at the question of doctrine, it would be relatively easy to support the principles and concepts supporting the Democratic Peace Theory. The idea behind the theory is that democracies will exhibit a uniformity of conduct in international relations. This conduct will be based upon the concept of democratic peacefulness which is inculcated in society through the influence of a democracy's culture, perceptions, and practices. The case studies, however, reveal that there is a lack of uniformity between each democratic state in the following areas: the development of an independent air force; the application of air power doctrine; and the conduct of air operations in World War II.

In the development of air power, it is easily apparent that each of the three democracies established their own version of an acceptable air force. The French created a separate air arm but then held it hostage to the defensive doctrine of their Army. *L'Armee de l'air* was further handicapped by the organizational set-up of the their command structure which negated the air commander's ability to command air assets--a job delegated to the immediate needs of the Army. Furthermore, French air assets were spread out geographically, so that no massing of air power could be used against targets inside of Germany or within the immediate battle area. The initial air battle was given away before the war started.

The Royal Air Force was independent since its inception in 1918 and not tied to any surface force for doctrine or application of air assets. Unfortunately, the RAF suffered through a neglect of its aviation industry and poor military procurement system whereby it could not purchase sufficient numbers of modern aircraft or the aircraft types (bombers) that they wanted. British civil leadership decided those issues and prioritized aerial defense assets over strategic bombardment missions. This occurred because RAF Bomber Command was unable to fulfill its deterrent capability within British national defense strategy. In the end, civilian control of the procurement process was vindicated when RAF Fighter Command emerged as the single most important element of British defense after the debacle at Dunkirk. After the Battle of Britain, however, the RAF reverted to its first true mission, strategic bombing.

The United States did not create an independent Air Force until after World War II. The Army Air Force found itself totally subordinate to the Army surface commander until just before America's entry in the war. Although not wholly independent from the Army, air power events in Europe convinced the civilian and military leadership about the value of independent air operations and the AAF was able to conduct autonomous bombing missions in both theaters of the war.

There was no uniformity in the application of air power doctrine because each of the three democracies entered the fighting in different situations under different circumstances. This led to different applications of air power doctrine as well as the conduct of air operations that did not conform to doctrine. For example, French air forces did not apply a true air force doctrine in their battle with Germany. As a subordinate force in the defensive doctrine of the French Army, they could not pursue operations united as a

single air force for the benefit of a combined arms operation. Superior numbers of German aircraft at the point of the *Wehrmacht's* ground attack overwhelmed obsolescent French aircraft that fought with inferior numbers.

The British never succeeded in the application of their initial strategic bombing doctrine--their preferred method of employment. RAF bombing doctrine required precision bombing operations, however, poor aircraft, equipment, and crews dictated a change in bombing methodology. Night area bombardment characterized RAF air operations throughout World War II because that was the extent of RAF bombing expertise. The RAF was extremely successful in aerial defense operations, but that was not the mainstay of RAF offensive thought. In 1939, the bomber crews were poorly trained and the bomber aircraft were obsolete. Initial bombing operations displayed such poor results that the bombing doctrines developed since World War I were scrapped in favor of the area bombing methods which killed so many civilians.

The United States was unusual in its application of air power doctrine. Not only did the AAF tenaciously pursue its precision bombing doctrine in both theaters of war, it also wholly rejected it when adherence to the doctrine produced poor results. In Europe, the AAF remained true to their doctrine and conducted bombing campaigns that stressed strategic bombing of selected targets with a high degree of accuracy. Even when the German air defense system came very close to defeating American bombing operations, the AAF continued to fly daylight missions with increasing losses. In the Pacific theater, however, the AAF encountered some of the same problems that the British confronted in Europe. Fielding their new B-29 bomber, the AAF found that the aircraft were not effective within the guidelines of AAF air power doctrine. Using the B-29 as a high

altitude, precision bomber produced inferior results due to poor crew training and flaws in the B-29 weapon system. The remedy to this problem was the low altitude, area incendiary attacks on mainland Japan. The firebomb attacks were conducted to purposely create a conflagration--a self-feeding, fast spreading fire storm, which was extremely effective in destroying everything. This included military targets as well as tens of thousands of enemy civilians.

Examining the conduct of air operations for all three states, the French appear to be the only state where they acted in accordance with the tenets of the Democratic Peace Theory. Their culture, perceptions, and practices inhibited their conduct and the indiscriminate bombing of German civilians did not occur. The fact that their air forces were so outclassed may have factored in that decision as well.

The British and Americans were not so inclined to extend the hand of peacefulness to the enemy civilians. It appears that the primacy of national objectives, and the practical fulfillment of those goals, may have influenced the actions of the RAF and AAF commanders. For the British, the conduct of strategic bombing operations was the only direct manner to effectively attack the enemy. The war was judged to be a struggle for national existence where Germany was viewed as the greatest threat to humanity. It was therefore a moral task that required Britain to use its inferior aircraft and poorly trained crews to strike back in any manner possible. The only practical solution was for the crews to bomb the only target they could find with certainty--German towns and cities.

The United States was not threatened with the end of its national existence. The main concern for national leadership was that the war should end quickly without further loss of American life. This was extremely important since the United States was thrust

involuntarily into the war by a surprise attack. Like the RAF, AAF crews could not employ the B-29 with any success. Results were so poor that the first commander of the B-29 units in the Marianas Islands was relieved. To get the results dictated by the national objective of winning the war quickly with a minimum loss of American lives, the Twentieth Air Force commander decided to take a pragmatic response to the present situation. The results were deadly, but so highly effective that it calls into controversy the need for dropping the atomic bombs.

This evaluation of air power doctrinal development should encourage some measure of reflection concerning the expected uniformity of conduct as proposed by the Democratic Peace Theory. An evaluation of air power doctrine is but one aspect of state interaction within the formulation of military doctrine and an even smaller portion of international political intercourse when one considers other means of interstate exchange such as trade, diplomacy, and foreign aid. What is significant in these case studies is that air power doctrine was the best guess of how to use air power and an indication of state intent. Having determined the best way to apply air assets; bounded by the culture, perceptions, and practices of each country, each democracy established the force structure and organization that they thought would exploit air power to its fullest potential. This led to three variations of the air power theme with three very different results--two of which displayed inhumane behavior. The states that engaged in the indiscriminate bombing of civilians had no intention of doing so when they crafted their air forces and its methods of employment. Finally, applying fifty years of historical hindsight, these conclusions remain:

1. The development of air power doctrine tends to support the notion that democracies intend to act with humanitarian regard for civilian lives;

2. The application of air power doctrine will be consistent with its intent until negative circumstances force a doctrinal reevaluation. The reevaluation may force a change in the methodology used to achieve national security objectives; and

3. The conduct of air operations by democratic states in World War II is not wholly consistent with each state's air power doctrine. In fact, the study shows that doctrine will be replaced when it no longer provides the intended result. In doing so, the primacy of the national objective will determine the methodology to achieve that goal. This may include the rejection of any democratic humanitarian values inculcated in the air doctrine.

In the face of national objectives, the democratic intentions of peacefulness or humanitarianism, inculcated from the culture, perceptions, and practices of democratic states, may not dictate the actions of that state in the international arena. There may exist a uniformity of intent, but no uniformity of behavior. Therefore, with regard to the formulation of United States National Security Strategy and foreign policy, the question must be asked: What is the proper basis for the conduct of US international relations? Is is the realist's prism of power, or the democratic idealist's prism of peace? Acceptance of the Democratic Peace Theory could place the United States in jeopardy. If continued

studies of democratic behavior show that democracies only have the intent to conduct peaceful international relations, unsupported by history, then we can expect other states, democratic or authoritarian, to continue viewing our activities with a wary, but hungry eye.

LIST OF REFERENCES

Allison, Graham, *Essence of Decision; Explaining the Cuban Missile Crisis* (Boston: Little, Brown and Company, 1971).

Bindinian, Larry J., *The Combined Allied Bombing Offensive Against the German Civilians, 1942-1945* (Lawrence: Coronado Press, 1976).

Buell, Thomas B., Franks, Clifton R., Hixson, John A., Mets, Davis R., Pirnire, Bruce R., Ransone, James F., Stone, Thomas R., *The Second World War: Europe and the Mediterranian,* ed. Thomas E. Griess (Wayne: Avery Publishing Group, Inc., 1989).

Burbach, David T., "Presidential Approval and the Use of Force," *Defense and Arms Control Studies Working Paper* (Cambridge: Massachusetts Institute of Technology, 1994).

Carr, E.H., *The Twenty Year's Crisis 1919-1939* (New York, Harper & Row, Pubs., 1939).

Christienne, Charles and Lissarague, Pierre, *A History of French Military Aviation*, translated by Francis Kianka (Washington D.C.: Smithsonian Institution Press, 1986).

Clausewitz, Karl Von, *War, Politics and Power*, edited and translated by Collins, Edward M., Colonel, USAF (South Bend: Regenery/Gateway Inc., 1962).

Clinton, William J., "1994 State of the Union Address," *Vital Speeches of the Day* Vol. LV, No. 9 (Mount Pleasant: City News Publishing Co., 1994), pp. 258-264.

Coffey, Thomas M., *Iron Eagle: The Turbulent Life of General Curtis LeMay* (New York: Avon Books, 1986).

Dahl, Robert A., *Democracy and its Critics* (New Haven and London: Yale University Press, 1989).

Dahl, Robert A., *Polyarchy* (New Haven and London: Yale University Press, 1971).

Divine, David, *The Broken Wing: A study in the British exercise of air power* (London: Hutchinson & Company, 1966).

Doolittle, James H., General, *I Could Never Be So Lucky Again* (New York: Bantam Books, 1991).

Doyle, Michael W., "To the Editors," Correspondence, *International Security*, Vol. 19, No. 4 (1995), pp. 180-185.

Dostoevsky, Fyodor, *The Grand Inquisitor on the Nature of Man*, trans. Constance Garnett, ed. William Hubben (Indianapolis: Bobbs-Merrill, 1980).

Drew, Donald M., Colonel, "The Doctrine-Strategy Link," scripted from a lecture to the Air Command and Staff College class of 1989, *Air Command and Staff College Correspondence Lesson Book*, Vol. 2, Lesson 6 (Maxwell AFB: Air University Press, 1989), pp. 89-92.

Drew, Donald M., Colonel, and Snow, Dennis M., *From Lexington to Desert Storm War and Politics in the American Experience* (New York: M.E. Sharpe, Inc., 1994).

Drew, Donald M., Colonel, and Snow, Dennis M., "Making Strategy: An Introduction to National Security Processes and Problems," *Air Command and Staff College Correspondence Lesson Book*, Vol. 2, Lesson 6, (Maxwell AFB: Air University Press, 1988), pp.61-66, 73-88.

Friedrich, Carl Joachim, *Inevitable Peace* (London: Geoffrey Cumberlege, Oxford University Press, 1948).

Frizzell, Donaldson D., "Early Theories of Air Strategy," *Military Strategy: Theory and Application*, (Carlisle Barracks: US Army War College, 1989), pp. 147-169.

Fokker, Anthony, as quoted in *The Command of the Air* by Giulio Douhet, Trans. Dino Ferrari (1942; rpt. Washington DC: Office of Air Force History, 1983).

Forget, Michel, "Co-operation between Air Force and Army in the French and German Air Forces during the Second World War," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 415-457.

Futrell, Robert Frank, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force 1907-1960*, Vol. 1 (Maxwell Air Force Base: Air University Press, 1989).

Gilpin, Robert, "The Richness of the Tradition of Political Realism" in *Neorealism and its Critics*, ed. Robert O. Keohane (New York: Columbia Univ. Press, 1986), pp. 301-322.

Groehler, Olaf, "The Strategic Air War and its Impact on the German Civilian Population," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 279-297.

Hansell, Haywood S.,Jr., Major General, *The Strategic War against Germany and Japan* (Washington DC: Office of Air Force History, 1986).

Henkin, Louis, "The Use of Force: Law and U.S. Policy" in *Might v. Right, International Law and the Use of Force* (Washington DC: Council on Foreign Relations, Inc., 1991), pp. 37-70.

Higham, Robin, *Air Power A Concise History* (New York: St. Martin's Press 1972).

Hinsley, E.H. *Power and the Pursuit of Peace* (Cambridge: Cambridge University Press, 1957).

Johnson, Paul, *Modern Times: The World from the Twenties to the Nineties* (New York: HarperCollins Publishers, Inc., 1991)

Keegan, John, *A History of Warfare* (New York: Vintage Books, 1993).

Kennedy, Paul, "Grand Strategies in War and Peace: Toward a Broader Definition," in *Grand Strategies in War and Peace* (New Haven and London: Yale University Press, 1991), pp. 1-10.

Krepinevich, Andrew F., Jr. *The Army and Vietnam* (Baltimore and London: The Johns Hopkins University Press, 1986).

Lake, Anthony, "From Containment to Enlargement," *Vital Speeches of the Day* Vol. LX, No. 1 (Mount Pleasant: City News Publishing Co., 1993), pp. 13-19.

Layne, Christopher, "The Myth of Democratic Peace," *International Security*, Vol. 19, No. 2 (1994), pp. 5-49.

Leckie, Robert, *The Wars of America*, Vol. II (New York Harper Publishers, 1992).

Levy, Jack S., "Domestic Politics and War," in *The Origin and Prevention of Major Wars*, eds. Robert I. Rothberg and Theodore K. Rabb (Cambridge: Cambridge University Press, 1989).

Lewy, Guenter, *America in Vietnam* (New York: Oxford University Press, 1978).

Lippman, Walter, *The Public Philosophy* (1955; rpt., New Brunswick: Transaction Publishers, 1989).

MacArthur, Douglas, "Report of the Chief of Staff," in *The Sword and The Pen*, eds. Sir Basil Liddell Hart and Adrian Liddell Hart (New York: Thomas Y. Crowell Company, 1976), pp. 280-283.

Machiavelli, Niccolo, *The Prince* in *The Portable Machiavelli*, edited and translated by Peter Bondanella and Mark Musa (New York: Viking Penguin, Inc., 1983), pp. 77-166.

Mahan, Alfred Thayer, "The Influence of Sea Power Upon the French Revolution," in *The Sword and The Pen*, eds. Sir Basil Liddell Hart and Adrian Liddell Hart (New York: Thomas Y. Crowell Company, 1976), pp. 222-224.

Mearsheimer, John J., "The False Promise of International Institutions," *International Security*, Vol. 19, No. 3 (1993), pp. 5-49.

Messerschmidt, Manfred, "Strategic Air War and International Law," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 298-309.

Mitchell, William, *Memoirs of World War I: From Start to Finish of Our Greatest War* (New York: Random House, 1960).

Negretto, Gabriel L. "Kant and the Illusion of Collective Security," *Journal of International Affairs*, Vol. 46, No. 2, (Winter 1993), pp. 501-523.

O'Connell, Robert L., *Sacred Vessels* (Oxford: Oxford University Press, 1991).

Overy, Richard J., *The Air War 1939-1945* (Chelsea: Scarborough House Publishers, 1980).

Overy, Richard J., "Air Power in the Second World War: Historical Themes and Theories," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 7-30.

Owen, John M., "How Liberalism Produces Democratic Peace," *International Security*, Vol. 19, No. 2 (1994), pp. 87-125.

Pangle, Thomas L., "The Philosophic Understandings of Human Nature Informing The Constitution", in *Confronting the Constitution*, ed. Allan Bloom (Washington DC: The AEI Press, 1990), pp. 9-76.

Parks, W. Hays, "Air War and the Laws of War," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 310-372.

Probert, Henry A., "The Determination of RAF Policy in the Second World War," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 683-701.

Porch, Douglas, "Arms and Alliances: French Grand Strategy and Policy in 1914 and 1940," in *Grand Strategies In War and Peace*, ed. Paul Kennedy (New Haven and London: Yale University Press, 1991), pp. 125-144.

Posen, Barry R., *The Sources of Military Doctrine* (Ithaca and London: Cornell University Press, 1984).

Robineau, Lucien, "French Air Policy in the Inter-War Period and the Conduct of the Air War against Germany from September 1939 to June 1940," in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 627-657.

Ropp, Theodore, *War in the Modern World* (Durham: Duke University Press, 1959).

Russett, Bruce, *Grasping the Democratic Peace* (Princeton: Princeton University Press, 1993).

Sagan, Scott D., "Rules of Engagement," in *Avoiding War; Problems of Crisis Management*, ed. Alexander L. George (Boulder: Westview Press, 1991), pp. 443-470.

Scheffer, David J., "Use of Force After the Cold War: Panama, Iraq, and the New World Order" in *Might v. Right, International Law and the Use of Force* (Wash DC: Council on Foreign Relations, Inc., 1991), pp. 109-172.

Sherman, William T., *Memoirs of William T. Sherman* Vols. 1 & 2 (1875; rpt. New York: De Capo Press, Inc., 1984).

Spiro, David, "The Insignificance of the Liberal Peace," *International Security*, Vol. 19, No. 2 (1994), pp. 50-81.

Smith, Malcolm, *British Air Strategy Between the Wars* (Oxford: Clarendon Press, 1984).

Taylor, AJP, *The Second World War* (New York: Paragon Books, 1975).

Terraine, John, "Theory and Practice of Air War: the RAF" in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 467-495.

Wark, Wesley K., "The Air Defense Gap: British Air Doctrine and Intelligence Warnings in the 1930s,"in *The Conduct of the Air War in the Second World War*, ed. Horst Boog (Oxford: Berg Publishers Limited, 1992), pp. 511-526.

Watts, Barry D. *The Foundations of US Air Doctrine: The Problem of Friction in War* (Maxwell Air Force Base: Air University Press, 1984).

Weigley, Russell F., *The American Way of War* (Bloomington: Indiana University Press, 1973).

Westenhoff, Charles M., LtCol, USAF, *Military Air Power: The CADRE Digest Of Air Power Opinions And Thoughts* (Maxwell Air Force Base: Air University Press, 1990).

Wright, Quincy, *The Study of War* (Chicago: University of Chicago Press, 1942).

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Technical Information Center Cameron Station Alexandria, VA 22304-6145	2
2.	Libarary Code 13 Naval Postgraduate School Monterey, CA 93943-5002	2
3.	N51, The Pentagon, Room 4E566 Office of the Chief of Naval Operations Washington, D.C. 20350	1
4.	The Honorable H. Allen Holmes Assistant Secretary of Defense of SO/LIC The Pentagon RM 2E258 Washington, DC 20301-2500	1
5.	GEN Wayne A. Downing, USA Commander in Chief US Special Operations Command MacDill AFB, FL 33608-6001	1
6.	Defense Intelligence Agency ATTN: PGT-2 Ms. Polly Baumgardner Washington, DC 20340	1
7.	Defense Intelligence Agency ATTN: PGT-2 Mr. Halloran Washington, DC 20340	1
8.	Commander in Chief US Special Operations Command ATTN: Dr. John Parton MacDill AFB, FL 33608-6001	2

9.	The JCS Staff J-3 Special Operations Branch Washington, DC 20318-3000	1
10.	Superintendent ATTN: Professor Gordon H. McCormick (Code NS/Mc) Naval Postgraduate School Monterey, CA 93943-5000	1
11.	Superintendent ATTN: Professor Bard Mansager (Code Ma/Ma) Naval Postgraduate School Monterey, CA 93943-5000	1
12.	HQ USASOC ATTN: AOHS/Dr. Richard Stewart Ft. Bragg, NC 28307-5200	1
13.	U.S. Army Center for Military History ATTN: Dr. David Hogan 1099 14th St. NW Washington, DC 20005-3402	1
14.	USAFSOS/EDOJ 344 Tully St. Hurlburt FLD, FL 32544-5826	1
15.	USAFSOS/EDRT 338 Tully Street Hurlburt FLD, Fl 32544-5828	1
16.	The Director Central Intelligence Agency Office of Training and Education Registration Division Washington, DC 20505	1
17.	Library Naval War College Newport, RI 02840	1

18.	Strategic Studies Group (SSG) Naval War College Newport, RI 02840	1
19.	Department of Military Strategy National War College (NWMS) Ft. Leslie J. McNair Washington, DC 20319-6111	1
20.	US Army Command & General Staff College Concepts and Doctrine Directorate ATTN: Mr. John B. Hunt Ft. Leavenworth, KS 66027-6900	2
21.	US Military Academy ATTN: Department of Military History West Point, NY 10996	1
22.	Marquat Memorial Library US Army John F. Kennedy Special Warfare Center & School Rm. C287, Bldg. D3915 ATTN: Mr. Fred Fuller Ft. Bragg, NC 28307-5000	1
23.	Jennifer Duncan Center for the Study of Political Violence Naval Postgraduate School Monterey, CA 93943-5000	5
24.	Commander in Chief US Special Operations Command ATTN: CAPT. Paul Schmella, USN MacDill AFB, FL 33608-6001	1
25.	EUR/EE, Room 5220 Department of State Washington, DC 20520	1

26.	Mr. Scott Sullivan ASD SOLIC The Pentagon, Room 2E258 Washington, DC 20301-2500	1
27.	Mr. Frederick Fleitz Central Intelligence Agency Office of European Analysis, 6G21 Washington, DC 20505	1
28.	Hoover Institution for War, Revolution and Peace Palo Alto, CA 94306	1
29.	Library Air War College Maxwell AFB, AL 36112-6428	1
30.	United States Special Operations Command ATTN: MAJ STEVE COX, SOJ5-C 7701 Tampa Point Blvd. MacDill AFB, FL 33621-5323	1
31.	Hurlburt Base Library 16SVS/SVRL ATTN: Susan Whitson 410 Cody Ave. Hurlburt Fld, FL 32544-5417	1
32.	USASOC Directorate of History and Museums ATTN: AOHS-Dr. Stewart Ft. Bragg, NC 28307-5200	2
33.	Defense Technical Information Center 8725 John J. Kingman Rd., STE 0944 Ft. Belvoir, VA 22060-6218	1
34.	Professor Cynthia Levy National Security Affairs Naval Postgraduate School Monterey, CA 93943-5000	1

35. Professor Glenn Robinson — 1
National Security Affairs
Naval Postgraduate School
Monterey, CA 93943-5000

36. Professor John Arquilla — 1
National Security Affairs
Naval Postgraduate School
Monterey, CA 93943-5000

37. Professor Frank Teti — 1
Chairman, National Security Affairs
Naval Postgraduate School
Monterey, CA 93943-5000

38. Professor Maria Moyano — 1
National Security Affairs
Naval Postgraduate School
Monterey, CA 93943-5000

39. Professor Scott Tollefson — 1
National Security Affairs
Naval Postgraduate School
Monterey, CA 93943-5000

40. Major John Mabe — 1
Marine Corps Staff College
S Quarters #6 MCCDC
Quantico, VA 22134

41. Major Robert J. MacDonald — 3
23 South Nace Lane
Dover, DE 19901

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY CA 93943-5101

DUDLEY KNOX LIBRARY
3 2768 00323020 2